C73P

N.S.W. DEPARTMENT OF AGRICULTURE.

BIOLOGICAL BRANCH - DIVISION OF SCIENCE SERVICES.

P L A N T D I S E A S E S U R V E Y.

for the

TWELVE MONTHS ENDING 30TH JUNE, 1950.

TWENTIETH ANNUAL REPORT.

15 MAR 1951

Notes compiled by officers of the Plant Pathological Section of the Biological Branch, New South Wales Department of Agriculture, Sydney, Australia.

----oOo----

N.S.W. DEPARTMENT OF AGRICULTURE.

BIOLOGICAL BRANCH - DIVISION OF SCIENCE SERVICES.

P L A N T D I S E A S E S U R V E Y.

for the

TWELVE MONTHS ENDING 30TH JUNE, 1950.

TWENTIETH ANNUAL REPORT.

Notes compiled by officers of the Plant Pathological Section of the Biological Branch, New South Wales Department of Agriculture, Sydney, Australia.

----oOo----

N.S.W. DEPARTMENT OF AGRICULTURE.

Biological Branch Staff.

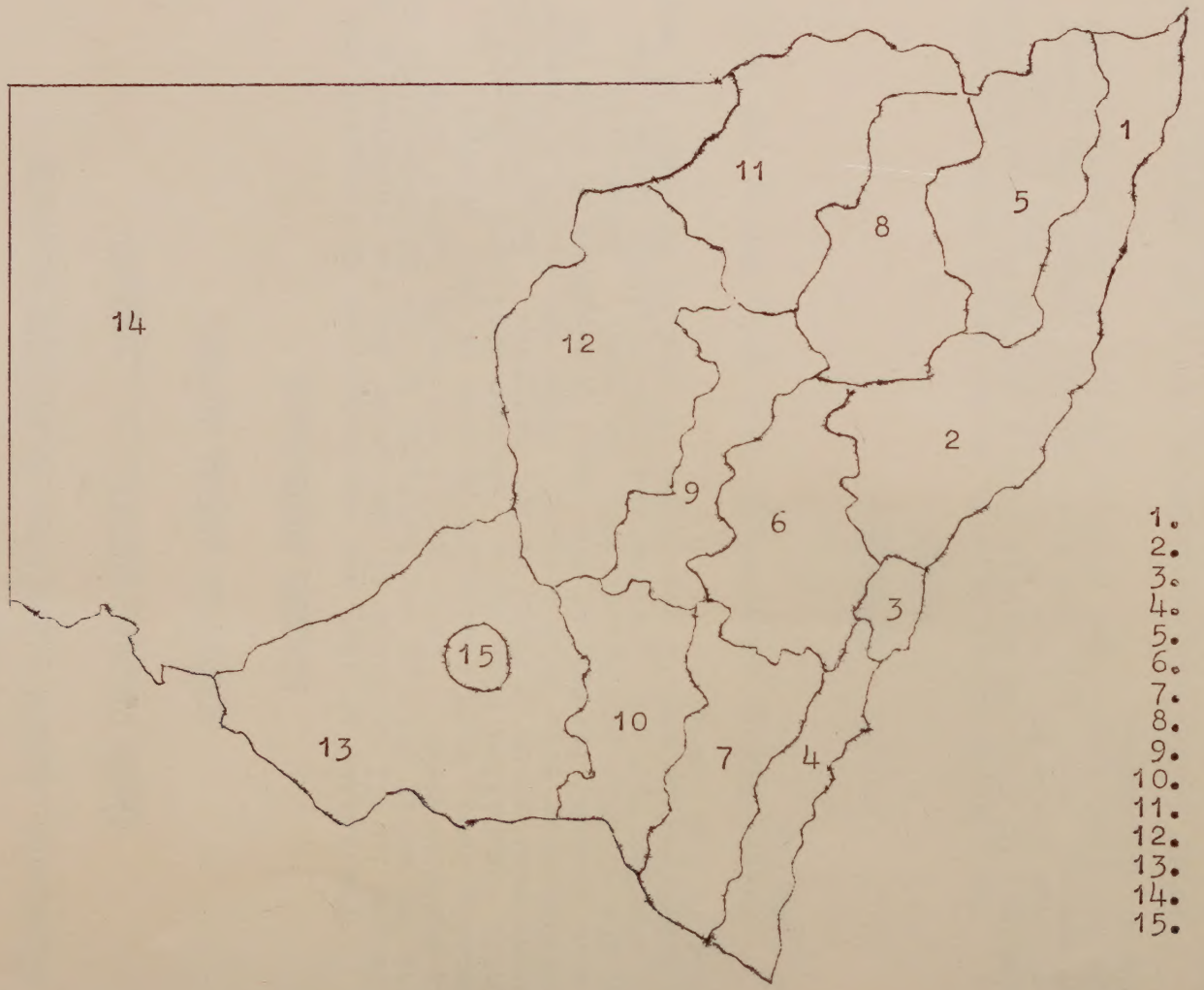
C.J. Magee, D.Sc.Agr., M.Sc.	..	Chief Biologist
W.S. Sutton, B.Sc.Agr., A.A.C.I.	..	Senior Biologist
R.D. Wilson, M.Sc., M.Sc.Agr.	..	Plant Pathologist
Lilian Fraser, D.Sc.	..	Plant Pathologist
T.B. Kiely, D.Sc.Agr.	..	Plant Pathologist
J.R. Morschel, B.Sc.Agr.	..	Plant Pathologist
F.C. Butler, B.Sc.Agr.	..	Plant Pathologist
K.E. Hutton, B.Sc.Agr.	..	Asst. Plant Pathologist
R.J. Conroy, B.Sc.Agr.	..	Asst. Plant Pathologist
H.H. Randell	..	Bacteriologist
D. Corbett, B.Sc.Agr.	..	Asst. Bacteriologist
K. Baumgartner, B.Sc.Agr.	..	Asst. Bacteriologist

ACKNOWLEDGMENTS. Grateful acknowledgment is made of the data provided by the Colonial Sugar Refining Company Ltd. in respect of diseases of sugar cane; also information made available by the Specialist and Field Officers of the Divisions of Horticulture and Plant Industry of the Department of Agriculture, by members of the Faculty of Agriculture, University of Sydney, and by Plant Pathologists of the Commonwealth Scientific and Industrial Research Organisation.

C O N T E N T S.

	PAGE.
CEREALS AND GRASSES	
Wheat	1 - 3
Oats	3 - 4
Barley	4
Rye	4
Millets	4
Sorghum	4
Maize	5
Rice	5
Sugar Cane	5 - 6
Sweet Corn	7
Miscellaneous Grasses	7 - 10
FIELD AND FODDER CROPS (Alphabetically by common name)	10 - 13
FRUIT	
Cane Fruits	- 13
Citrus Fruits	14 - 19
Pome Fruits	20 - 22
Stone Fruits	22 - 27
Tropical Fruits	27 - 28
Miscellaneous Fruits	28 - 31
ORNAMENTALS (Alphabetically by common name)	31 - 43
VEGETABLES (Alphabetically by common name)	43 - 55
MISCELLANEOUS PLANTS (Alphabetically by common name)	56 - 60
WEATHER	1

----oOo----



KEY.

1. North Coast (N.C.)
2. Central Coast (C.C.)
3. Metropolitan Area (M.A.)
4. South Coast (S.C.)
5. Northern Tableland (N.T.)
6. Central Tableland (C.T.)
7. Southern Tableland (S.T.)
8. North Western Slope (N.W.S.)
9. Central Western Slope (C.W.S.)
10. South Western Slope (S.W.S.)
11. North Western Plain (N.W. P.)
12. Central Western Plain (C.W.P.)
13. Riverina (R.)
14. Western Division (W.D.)
15. Murrumbidgee Irrigation Areas (M.I.A.)

DISTRICTS OFNEW SOUTH WALES.

DEPARTMENT OF AGRICULTURE

NEW SOUTH WALES

BIOLOGICAL BRANCH - DIVISION OF SCIENCE SERVICES.

PLANT DISEASE SURVEY - 1949/50.

TWENTIETH ANNUAL REPORT.

WEATHER CONDITIONS.

The Winter of 1949 was characterised by frequent and heavy frosts in all sections of the State and was followed by a somewhat dry early Spring, particularly in the South-Western and Central Western areas. Late Spring and early Summer were unseasonably cool, with prolonged periods of dull weather frequently associated with rain. Summer continued to be cool, with occasional short periods of hot weather. Autumn and Winter 1950 temperatures were only slightly above the mean but temperatures were unusual because of the small divergence of both the maximum and minimum recordings from the mean. Saturation deficit was low for long periods and precipitation during the period January-June was in excess of the annual rainfall in most districts of the State.

Severe floods occurred in most areas during the latter half of 1949/50.

CEREALS.

WHEAT.

The 1949/50 wheat harvest in New South Wales yielded approximately 83,000,000 bushels from a sowing of 4,021,000 acres, at an average yield per acre of 20.6 bushels. This is the highest average yield ever obtained and was largely the result of ample rainfall during the growing period of the crop in all sections of the State.

FROST INJURY was responsible for heavy losses throughout the State and, for the third time in the past four seasons, had a more serious effect on crop yields than any disease of a parasitic nature. Basal stem frosting was particularly severe and led to much premature ripening and pinching of grain, both directly and by predisposing affected crops to foot-rot attack. The most severe frost damage was reported from the Warialda (N.W.S.), Moree (N.W.P.), Dubbo (C.W.S.) and Orange (C.T.) districts, and the Western half of the Riverina.

LEAF SPOT or WINTER BLIGHT (*Septoria tritici*) was prevalent early in the season in Central and Southern districts. During the dry Winter and early Spring the disease was markedly checked but, later, again developed extensively in these areas following a prolonged period of wet weather in September and October. This late development was most pronounced in the Riverina and, in the southern half of this region, the degree of infection ranked as one of the worst three outbreakes since 1928.

The disease also occurred extensively in the northern part of the State where normally it is seldom observed.

FOOT ROT (Helminthosporium sativum, Fusarium culmorum and Curvularia sp.) was more in evidence than usual. It was particularly noticeable on the Central Slopes and Tablelands and in the North-West. Stem frosted crops in heavy soils were most subject to attack. The heaviest observed general infection was at Attunga (N.W.S.) where 5% of the crop was affected in one instance.

STEM RUST (Puccinia graminis tritici) appeared likely to develop to a serious extent in North Western districts in the late Spring and early Summer. However, a prolonged period of unseasonably cool weather in October and November suppressed its widespread development in this area and only an occasional crop showing heavy infection was observed. Elsewhere in the State little evidence of the disease was seen. A noteworthy feature of stem rust occurrence during the season was the advent of new races capable of attacking hitherto resistant varieties in Yalta, Kendee, Charter and Gabo. Two races appear to be involved. The varieties listed are in order of relative susceptibility, Yalta being the most susceptible of the four. Celebration and the South Australian variety, Warigo, maintained their resistance.

TAKE-ALL (Ophiobolus graminis) was reported from all sections of the wheat belt. It appeared to be more prevalent than usual, particularly in Southern and Central Western districts. In the Albury (S.W.S.) district the average loss was estimated at 3%, with individual crops showing 25-30% infection. Most damage occurred in pasture paddocks previously dominated by barley grass (Hordeum leporinum) and Bromus spp. and used for sheep grazing purposes. Many crops were affected in the Dubbo (C.W.S.) and Orange (C.W.) districts, with losses of up to 15% in some crops. Take-all outbreaks, for the most part, occurred late in the season following an abnormally wet Spring.

BUNT (Tilletia caries and T. foetida). The only recorded instances of bunt infection during the season were from the Narrandera (R.) and Temora (S.W.S.) districts. In both cases infection was light. No other reports of bunt occurrence were received.

LOOSE SMUT (Ustilago tritici) was present in all districts but the degree of infection was uniformly low. The heaviest observed infection was between 2% and 3% in a crop of Magnet in the West Wyalong (S.W.S.) district. Reports from other districts indicate that this variety is one of the most susceptible commercial varieties in cultivation.

FALSE BLACK CHAFF (non parasitic) occurred throughout the wheat belt but was particularly noticeable in the North West, following a prolonged period of dull, rainy weather in October. Warigo (Nabawa x Hope) proved very subject to the condition and, in several instances, affected crops of this variety failed to mature satisfactorily. In this Department's hybrid plots at Tamworth, Hope, Uruguay, Argentine and Rust Laboratory 55 crosses showed the condition.

GLUME BLOTCH (Septoria nodorum), though more prevalent than usual, was of little importance. It was observed at Tamworth and Gunnedah (N.S.W.), Dubbo (C.W.S.) and Wagga Wagga (S.W.S.).

LEAF RUST (Puccinia triticina) occurred throughout the wheat belt with infections ranging from slight to moderately severe. Generally speaking, it was more prevalent in the North West than in Western or Southern N.S.W. The variety, Charter, continued to show good field resistance.

FLAG SMUT (Urocystis tritici) was of little economic importance and only three reports of its field occurrence were received during the season. The reports came from Inverell (N.T.), Narrabri (N.C.P.) and Tooraweenah (N.C.P.).

BLACK POINT (Helminthosporium and Alternaria spp. associated) was very common in grain samples from the North West. The wet Summer favoured its development in Central and Southern districts also, but not to such a marked degree.

PURPLE PATCH (Rhizoctonia solani) was reported only from the Greenethorpe (C.T.) district where a number of crops showed a moderate degree of infection.

DOWNY MILDEW (Sclerospora macrospora) developed to a minor extent in the Southern Riverina. As high as 10% infection was noted in low-lying poorly-drained areas of one crop at Berrigan.

BASAL GLUME ROT (Pseudomonas atrofaciens) was observed in several varieties, including Charter and Gabo, in the Tamworth (N.W.S.) district.

LEAF SPECKLE (unidentified). A pronounced leaf speckle condition, characterised by small brown-bordered lesions with light centres, was noticed on the flag of an un-named Hope hybrid at Tamworth (N.W.S.). Numerous platings of affected tissue gave consitently negative results. The hybrid concerned showed heavy FALSE BLACK CHAFF development.

OATS.

FROST INJURY occurred in all sections of the State and was the most serious source of loss in crops grown for grain purposes. Estimated grain losses in parts of the Central West and South West ranged from 5% to 40%. In observed cases, blighting of the spikelets was equally as common as stem frosting.

STEM RUST (Puccinia graminis avenae) was present throughout the State but did not develop to any serious extent. A few crops showing moderately severe infection were observed at Tamworth (N.W.S.).

CROWN RUST (Puccinia coronata) occurred extensively in crops on the Central Coast and in Northern districts. Infections ranged from light to moderately severe. Only slight development was noticed in Central and Southern districts.

LOOSE SMUT (Ustilago avenae) was reported from all oat-growing districts but not in serious amount, except in the case of occasional crops of White Tartarian on the Northern Tablelands. Unusual flag infection occurred in a crop of the same variety at Richmond (M.A.)

COVERED SMUT (Ustilago kolleri) was observed in crops of Fulghum at Wagga Wagga (S.W.S.) and Belar at Tamworth (N.W.S.). In both cases infection was less than 2%.

BACTERIAL STRIPE (Pseudomonas striafaciens) was observed in several crops on the South Western Slopes. It was also reported from the North Western Slopes.

SPECKLED BLOTCH (Leptosphaeria avenaria = Septoria avenae) was widespread in Southern and Central districts. Light infection was observed in a crop of Algerian at Tamworth in North Western N.S.W., where the disease rarely occurs.

LEAF SPOT (Helminthosporium avenae) occurred in most districts but infections were usually light.

BARLEY.

SCALD (Rhyncosporium secalis) was very prevalent early in the season in Southern N.S.W. but its development was checked by a dry period of weather in the Winter and early Spring months. However, following an abnormally wet October, it reappeared on an extensive scale and many crops showed moderate to severe infection towards the latter part of the season.

COVERED SMUT (Ustilago hordei) was noticed in an occasional crop in the Riverina and South Western Slopes districts.

STEM RUST (Puccinia graminis tritici) was observed on the Northern Tablelands and in plots at Wagga Wagga (S.W.S.). Infections ranged from slight to moderate.

BASAL GLUME ROT (Pseudomonas atrofaciens) was recorded in trace amount at Emerald Hill (N.W.S.). This represents a first record on barley in this State.

RYE.

No records.

BROOM MILLET.

No disease records. Wind and rain caused considerable lodging and tangling of crops at Tumut (S.W.S.). Excessive rains resulted in fibre deterioration in the Newcastle (C.C.) district.

JAPANESE MILLET.

GRAIN MOULD (Aspergillus, Penicillium and Tricothecium spp.) was observed in a Northern grain sample.

GRAIN SORGHUM.

RED STAIN (undetermined - Gibberella moniliformis associated) was very prevalent throughout the State. It was particularly noticeable in Coastal districts.

KERNAL SMUT (Sphacelotheca sorghi), in trace amounts, was reported from North Western N.S.W.

RUST (Puccinia purpurea) was observed in trace amount at Glen Innes (N.T.).

MAIZE.

ROOT and BASAL STALK ROT (Gibberella moniliformis, G. saubinetii and G. fujikuroi var. subglutinans) occurred in varying degree in all maize districts. Although more prevalent generally than last season, no cases of severe loss were reported. The condition was commonly observed in the Glen Innes (N.T.), Kempsey (N.C.), Maitland (C.C.), Bega (S.C.) and Hawkesbury (M.A.) districts.

COB and GRAIN ROTS (Gibberella moniliformis, G. saubinetii and G. fujikuroi var. subglutinans) caused quite heavy losses on the Coast and Tablelands generally, and at Tumut (S.W.S.). In many cases infection was secondary to bird and insect injury, particularly in poorly covered varieties such as D.S. 28. Minor damage was reported from Dubbo (C.W.S.).

LEAF BLIGHT (Helminthosporium turcicum) developed extensively throughout Coastal and Northern Tablelands districts. It was reported to be most common in early maturing varieties. At Glen Innes (N.T.) Hickory King showed a satisfactory field resistance in comparison with other varieties.

DRY ROT (Diplodia zeae) was more in evidence than last season. Considerable infection occurred at Glen Innes (N.T.) and in several North Coast districts.

SEEDLING BLIGHT (Gibberella fujikuroi var. subglutinans) affected some crops in the Grafton (N.C.) district. G. Moniliformis was isolated from blighted seedlings in a small experimental plot at the Botanic Gardens (M.A.).

PURPLE SHEATH SPOT (undet.) was observed at Grafton (N.C.).

PHOSPHORUS DEFICIENCY affected some crops growing in light acid soils (pH 5.4) at Tenterfield (N.T.).

FLOOD DAMAGE seriously reduced crop yields in Coastal districts. In many cases affected crops were inumdated three times during the critical stages of growth between pre-tasselling and maturity.

RICE.

No diseases of a parasitic nature were reported. A failure of grain to set in some crops was ascribed to high temperatures at flowering.

BROWN GLUME STAIN (non-parasitic) was observed in the M.I.A. but did not affect crop yields.

SUGAR CANE.

Information supplied by the Colonial Sugar Refining Co. Ltd. shows that, during the 1949/50 season, 330,768 tons of sugar cane were crushed.

Losses due to disease were estimated as follows:-

FIJI DISEASE (Virus)	..	232 tons
MOSAIC (Virus)	..	7 "
RED STRIPE (Xanthomonas rubrilineans)	..	15 "
		254 "

The estimated loss of 254 tons represents approximately 0.08% of the total tonnage crushed.

Some damage was also caused by RED ROT (Physalospora tucumanensis) but the loss was not estimated. Traces of other diseases were observed but their apparent effect was too small to be worth recording. The following information has been abstracted from the Colonial Sugar Refining Company's agricultural circulars for 1950. All areas mentioned are on the North Coast.

FIJI DISEASE (Virus). Infection throughout the Richmond and Clarence River districts has been reduced, although the disease is reported to be still widespread on the Clarence. The failure of many Cudgen (Condong Mill supply area on the Tweed River) growers to carry out recommended control measures is held responsible for recently-observed infections in the normally resistant varieties, Vesta and Akbar, in this area.

RED STRIPE (Xanthomonas rubrilineans). The loss from this disease declined from 35 tons in 1948/49 to 15 tons this season. No details of areas affected by the disease were supplied.

MOSAIC (Virus) infection has been considerably reduced in the Tweed River area. This attributed mainly to the elimination of the variety, Comus.

RED ROT (Physalospora tucumanensis) caused minor damage in undisclosed areas.

LEAF SCALD (Bacterium albilineans). Small outbreaks have occurred in various parts of the Richmond River district in recent years.

Through an error in interpretation of reports, this disease was listed on Trojan in the Richmond River area in the Nineteenth Annual Report. The variety affected was Solon.

PINEAPPLE DISEASE (Ceratostomella paradoxa) destroyed a 33-acre planting of Vesta in the Clarence River district.

EYESPOT DISEASE (Helminthosporium sacchari) was reported to affect mature cane of the variety, Atlas, in the Clarence River area during the Winter months. Crops growing in rich sandy soil appeared most subject to attack.

CHLOROTIC STREAK (Virus). Trace infection was observed in certain undisclosed areas.

GUMMING (Xanthomonas vasculorum) was not observed during 1949. Despite Plant Disease Survey statements to the contrary, this disease has not been observed in any of the sugar cane mill supply areas of the Northern Rivers since 1943 and the C.S.R. Co. Ltd. considers that the disease has been eradicated.

SWEET CORN.

ROOT and BASAL STALK ROT (Gibberella moniliformis) was responsible for minor losses in some crops in the Hawkesbury (M.A.) district. No other reports of its occurrence were received.

COB and GRAIN ROT (Gibberella moniliformis, G. saubinetii and G. fujikuroi var. subglutinans) caused some losses in Coastal districts and in the Murrumbidgee Irrigation Areas. Considerable infection was reported from Grafton (N.C.). G. moniliformis was frequently associated with a cracked grain condition in canning crops in the M.I.A.

LEAF BLIGHT (Helminthosporium turcicum) was reported to be more prevalent than usual in late crops in the Coastal districts.

RUST (Puccinia sorghi) was observed in all sweet corn growing districts. Infections ranged from a trace to moderately severe, but even in the cases of heaviest infection crops did not appear to be adversely affected.

GRAIN MOULD (Rhizopus, Penicillium and Acrostalagmus spp.) developed to a minor extent at Yanco (M.I.A.) and caused small losses in Coastal crops, usually following damage by birds or insects.

MISCELLANEOUS GRASSES.

BARLEY GRASS (Hordeum leporinum).

LEAF SPOT (Helminthosporium sp.) developed extensively and severe infection was observed at Tamworth and Gunnedah (N.W.S.) and in the Riverina and South Western Slopes districts.

STEM RUST (Puccinia graminis) was reported from Barham and Balranald (S.W. Riverina) and Tamworth (N.W.S.).

BUNT (Tilletia hordei) occurred widely. At Tamworth (N.W.S.), areas showing 50% infection were common. The degree of infection was much lower in Southern and Central districts.

LEAF SPOT (Septoria passerinii) was observed at Wagga Wagga (S.W.S.). The majority of plants were severely affected.

BENT GRASSES (Agrostis spp.).

BROWN PATCH (Rhizoctonia solani) was very severe throughout the Metropolitan Area and caused extensive damage to lawns and sports greens.

DOLLAR SPOT (Sclerotinia homoeocarpa) caused extensive damage to a Metropolitan Area bowling green after a prolonged period of wet weather in the latter half of the season. This represents the first authentic record of DOLLAR SPOT on bent grass in the Metropolitan Area.

BRISTLY SPEAR GRASS (Stipa aristiglumis.)

STEM SMUT (Cintractia hypodytes) was observed at Nemingha (N.W.S.).

BUFFALO GRASS (Stenotaphrum secundatum).

LEAF SPOT (Piricularia sp.) was severe in the Metropolitan Area. Infection of surface runners was commonly observed.

SLIME MOULD (Diachea leucopoda) developed on a Chatswood (M.A.) home lawn. An unidentified slime mould was also observed at Leeton (M.I.A.).

COUCH GRASS (Cynodon dactylon).

BROWN PATCH (Rhizoctonia solani, Curvularia and Helminthosporium spp., alone and in association) developed extensively and caused considerable damage to lawns and sports greens, especially in the Metropolitan Area. At Condobolin (C.P.) 75% of a green was killed out. Although R. solani was most commonly associated with BROWN PATCH occurrence, either alone or in association with species of Helminthosporium and and Curvularia, cases were observed in which the latter species appeared to be solely responsible for the condition.

DOLLAR SPOT (Sclerotinia homoeocarpa) was recorded for the first time on couch grass. The outbreak occurred in a Metropolitan Area bowling green.

RUST (Puccinia cynodontis) was observed in the Metropolitan Area.

SMUT (Ustilago cynodontis) occurred extensively in Coastal districts.

GREEN SCUM (Algae) was reported from Mudgee (C.T.) and Strathfield (M.A.).

SLIME MOULD (Physarum sp.) developed on a home lawn at Beverly Hills (M.A.).

CRESTED WHEAT GRASS (Agropyron cristatum).

ERGOT (Claviceps purpurea). Slight infection was observed in the grass nursery at Leeton Experiment Farm (M.I.A.)

CROWSFOOT GRASS (Eleusine indica).

BLIGHT (Helminthosporium sp.) developed extensively on leaves and inflorescences in the Metropolitan Area. Very heavy infection was observed at Pennant Hills and Narara.

GOLDEN TOP (Lamarckia aurea).

STEM RUST (Puccinia graminis ? avenae). Light infection was noticed in several areas in the Tamworth (N.W.S.) district.

KIKUYU (Pennisetum clandestinum).

BROWN PATCH (Rhizoctonia solani and Curvularia sp.) was reported from the Metropolitan Area.

LEAF SPOT (Piricularia sp.) occurred in the Metropolitan Area. Some grass patches were heavily infected.

SLIME MOULD (Physarum sp.) was recorded at Yoeval (C.W.S.) and Springwood (C.T.).

PARRAMATTA GRASS (Sporobolus capensis).

SOOTY HEAD (Helminthosporium ravenelii) was particularly common on the Central Coast. A high percentage infection was also reported from Murwillumbah (N.C.).

PASPALUM (Paspalum dilatatum).

ERGOT (Claviceps paspali) was common throughout the Coastal belt and on the Northern Tablelands. Species of Cerebella and Fusarium were commonly found in association.

PRAIRIE GRASS (Bromus unioloides).

SMUT (Ustilago bromivora) was common throughout the Coastal and Tableland districts of the State.

ANTHRACNOSE (Colletotrichum graminicolum) developed extensively in the Metropolitan Area and heavy infections were observed at Pennant Hills, Carlingford, Epping, the Hills District and Pitt Town. B. molliformis and B. Gussonii were not affected.

RED-LEG GRASS (Bothriochloa decipiens).

HEAD SMUT (Sorosporium sp.) was observed at Glen Innes (N.T.).

SOFT BROME (Bromus molliformis).

LEAF RUST (Puccinia bromina). Very heavy infection was observed at Pennant Hills (M.A.) in the late Spring, following a period of cool, wet weather. Great Brome (B. Gussonii) was also affected.

POWDERY MILDEW (Erysiphe graminis). Heavy infection occurred at Pennant Hills and elsewhere in the Metropolitan Area.

STINK GRASS (Eragrostis cilianensis).

DOWNY MILDEW (Sclerospora macrospora) was recorded from Greenethorpe (S.W.S.) and Gunnedah (N.W.S.). The plants from both localities were heavily infected.

SUMMER GRASS (Digitaria adscendens).

LEAF BLAST (Piricularia sp.) was reported from Somersby and Gosford (M.A.). Very heavy infection occurred in the late Summer.

PURPLE PATCH (Rhizoctonia solani) infection was observed at Castle Hill (M.A.).

WALLABY GRASS (Danthonia eriantha).

SMUT (Ustilago comburens) was observed at Barham (R.). Infection was slight.

WILD OATS (Avena fatua).

STEM RUST (Puccinia graminis avenae) was reported from many areas. Infections ranged from light to moderate in most districts. However, widespread and severe infection occurred on the North Western Slopes and Northern Tablelands.

CROWN RUST (Puccinia coronata) occurred extensively and infection was observed in many North Western, Coastal and Southern districts.

SPECKLED BLOTCH (Leptosphaeria avenaria = Septoria avenae). Heavy infection was observed in the Tamworth (N.W.S.) district and in Southern N.S.W.

WIMMERA RYE GRASS (Lolium rigidum).

STEM RUST (Puccinia graminis) was observed at Kenthurst (M.A.), Barham (R.) and Wentworth (W.D.).

WINTER GRASS (Poa pratensis).

LEAF RUST (Puccinia poarum) was again in evidence on Central Coast. Very heavy infection was reported from Balranald (R.). In this particular instance, adjacent plants of P. annua were unaffected.

FIELD AND FODDER CROPS.

CLOVERS.

RUST (Uromyces trifolii-repentis) occurred on white clover (Trifolium repens) at Nimbin (N.C.).

MOSAIC (Virus) was observed in many stands of subterranean clover (T. subterraneum) in the Tenterfield (N.T.) district. Cross inoculations showed that the yellow bean mosaic virus was responsible. A mosaic condition was also observed on berseem clover (T. alexandrinum) at Griffith (M.I.A.) but the identity of the virus responsible was not established.

COWPEAS.

LEAF SPOT (Septoria vignae) developed extensively on the lower leaves of a crop at Carlingford (M.A.).

WILT (Phytophthora sp.) was severe in a young crop grown for green manure purposes in a citrus orchard at Carlingford (M.A.).

LINSEED.

PASMO (Septoria linicola = Sphaerella linorum), recorded for the first time in 1948/49, occurred throughout the State during 1949/50. During the course of extensive surveys no commercial crops free from the disease were observed. Though widespread, the disease appeared to develop too late in the season to cause appreciable damage, except in a few lodged crops. The yield of one such crop on the North Western Slopes was reduced by an estimated 30%, whilst several yield losses in the vicinity of 10-15% were reported.

FROST INJURY was responsible for slight to moderately severe losses in various parts of the State. In a few instances, exceptionally severe losses were sustained. One 50-acre crop at Warialda (N.W.S.) was 80% affected.

CORTICAL ROOT ROT (Rhizoctonia solani) caused minor losses in the Armidale (N.T.) and Edgeroi (N.C.P.) districts. R. Solani was also isolated from seedlings affected by "damping off".

WILT (Fusarium oxysporum f. lini) was reported from Armidale (N.T.).

ZINC DEFICIENCY was observed in several localities in North-Western N.S.W. A very severly affected crop of 250 acres extent was reported from Moree (N.C.P.). Affected crops were also observed at Millguy and Yagobie (N.W.S.), Boggabri (N.C.P.) and at Trangie (C.W.S.).

LUCERNE.

LEAF SPOT (Pseudopeziza medicaginis) was favoured by the wet season and developed extensively in many districts. Heaviest infections were observed in the Metropolitan Area and on the Central Coast where some stands were badly defoliated. Considerable defoliation was also reported from parts of the South Western Slopes and South Coast.

WITCH'S BROOM (Virus) was observed throughout the State from Glen Innes (N.T.) to Albury (S.W.S.) on the Victorian border. Considerable infection was reported in some stands in the Riverina and the Western Division. An unusual feature this season was a tendency for the disease to appear in lucerne paddocks of only two or three years' standing.

ROOT ROT (Rhizoctonia solani) caused extensive damage to stands in many parts of the State following heavy Summer rains. Reports of the disease were received from the Metropolitan Area, South Coast, the Riverina and the Central Western Slopes. Approximately 70% of the plants were affected over an area of 1400 acres at Gilgandra (C.W.S.).

STEM NEMATODE DISEASE (Anguillulina dipsaci) was reported from the Hunter River district (C.C.), where it constitutes a serious problem, from Nowra (S.C.) and Leeton (M.I.A.). One young stand on the M.I.A. was practically destroyed.

BLACK STEM (Ascochyta imperfecta) caused considerable die-back of stands in the Inverell (N.T.) district. It was also reported from Berrigan in the south-eastern Riverina and Tempra (S.W.S.).

RUST (Uromyces medicaginis) was widespread. Heavy infections were noticed in the Metropolitan Area but throughout the remainder of the State the infections in reported instances ranged from slight to moderate.

DOWNY MILDEW (Peronospora trifolicrum) was most noticeable in young stands and caused damage to seedling plants at Yanco (M.I.A.) and Wagga Wagga (S.W.S.). Moderate infection of older plants was also observed at Wagga Wagga and at Temora (S.W.S.)

? BORON DEFICIENCY - Boron deficiency was suspected as the cause of an unthrifty condition in a stand at Tenterfield (N.T.).

FLOOD DAMAGE. Many lucerne stands were inundated by floods in Coastal N.S.W. and extensive areas were killed out. Between 60% and 70% of many stands on the Billabulla River flats in the Young (S.W.S.) district were destroyed and extensive damage occurred along the River flats in the Dubbo (C.W.S.) area.

LUPINS.

ROOT and CROWN ROT (Rhizoctonia solani) was observed at Hornsby (M.A.).

ROOT KNOT (Heterodera marioni) developed extensively in a small plot of New Zealand blue lupins in a Metropolitan Area holding.

MEDICS.

LEAF SPOT (Pseudopeziza? medicaginis) Heavy infection on burr medic (Medicago denticulata) was observed at a number of localities in Southern Riverina.

MOSAIC (Virus) was recorded on the same host at Griffith (M.I.A.).

SUNFLOWER.

WILT and STALK ROT (Sclerotinia minor) was recorded for the first time on this host in N.S.W. The outbreak occurred at Yanco Experiment Farm (M.I.A.) and approximately 60% of the plants were affected. S. minor had previously been recorded on tomatoes (1929) and peanuts (1948) at this Farm.

TOBACCO.

The area sown to tobacco in New South Wales was in the vicinity of 400 acres. Seasonal conditions, in general, were favourable and the total yield of 170 tons represented an increase of 20 tons on the previous year's harvest.

DOWNY MILDEW (Peronospora tabacina) developed extensively late in the season and was most severe in the later planted crops.

MOSAIC (Virus) was very common, with some crops showing a high percentage infection. Yield and quality, however, did not appear to be seriously affected.

ROOT KNOT (Heterodera marioni) was again prevalent in the lighter soils in the Ashford(N.W.S.) district and was also reported from Tenterfield (N.T.).

ROOT ROT (Rhizoctonia solani) was a source of loss in seed-beds at Bathurst (C.T.) and Tenterfield (N.T.) and also developed to a minor extent in the field.

SPOTTED WILT (Virus) affected odd plants in the Texas and Ashford (N.W.S.) districts.

YELLOW DWARF (Virus) was observed in a number of crops at Ashford (N.W.S.) but in all cases infections were light.

BIG BUD (Virus) occurred at Tenterfield (N.T.). Only an isolated plant was affected.

CALCIUM DEFICIENCY caused stunting of plants on a few properties in the Texas (N.W.S.) district.

ZONATE LEAF SPOT (? Alternaria sp.) was reported from Tenterfield (N.T.).

VETCH.

CHOCOLATE SPOT (Botrytis sp.) was observed at Glenorie (M.A.). Extensive leaf spotting and stem cankering occurred.

POWDERY MILDEW (Oidium sp.) developed on Vicia calcarata at Pomona (W.D.). Infection was heavy.

CANE FRUIT.

BLACK CURRANT.

LEAF SPOT (Mycosphaerella ribis). Moderate infection following wet Spring weather was reported from Batlow (S.T.).

BOYSENBERRY AND YOUNGBERRY.

ANTHRACNOSE (Elsinoe veneta). Moderate to heavy infection of canes and foliage was reported from localities in the Central Tablelands, South Coast and Metropolitan Area.

LOGANBERRY.

No reports.

RASPBERRY.

LEAF SPOT (Septoria sp.) was reported in the Autumn, causing heavy leaf infection from the South Coast, Central Tablelands and Metropolitan Area.

MOSAIC (Virus). 100% infection was observed in a small commercial crop of unknown variety at Moorebank (M.A.).

CITRUS FRUITS.

COLLAR and ROOT ROT and SHOOT BLIGHT (*Phytophthora citrophthora*). Severe outbreaks of root and collar rot of seedling stocks and budded trees were noted in two Metropolitan nurseries during Spring. Some collar rot of yearling budded trees, particularly lemons, occurred in most Metropolitan nurseries during Autumn but losses generally were slight.

Conditions of high humidity and intermittent rain, which persisted throughout the season, resulted in greatly increased incidence of COLLAR ROT in Coastal orchards. This was most severe in lowland orchards but highlands orchards also suffered damage. Infection was particularly active in the Autumn following Summer rains. The prevalence of the disease appeared to be greatest where fowls were ranged in the orchards. Very numerous reports were received of collar rot of lemons in home gardens in the Metropolitan Area. In the M.I.A. where air humidity is, as a rule, too low to permit the development of collar rots, some cases were observed in grapefruit and lemons at Leeton and Griffith, following a mild Summer with some rain.

In Hills, Hawkesbury River (M.A.) and Central Coast orchards where drainage is poor, considerable ROOT ROT occurred during the Summer. Although the soil in many orchards was particularly wet through the late Winter and early Spring, damage was, for the most part, limited to the destruction of fibrous roots but, as soil temperatures rose during November, considerable injury was observed of both fibrous and permanent roots. In one lowland orchard, extensive rotting of the permanent roots occurred on trees growing in soil of pH 4.9. However, in Coastal orchards where drainage is good, trees look particularly healthy, indicating the benefit of the wet season (up to 100 inches in some localities) so long as water does not lie in the root zone. Occasional trees in affected blocks in the M.I.A. and Murray River settlements (R. and W.D.) continued to die out, but generally the trees are in good condition. A block of young grapefruit badly affected with root rot in heavy soil at Barham (R.) was killed out following very heavy frosts in Winter, 1949.

The flooding of Coastal rivers during Winter, 1949, and Summer, 1950, provided an opportunity for comparing the effect of submergence at low and moderate temperatures. In Hawkesbury River orchards, temperatures following the Winter flood were low. Fruit which had been submerged mostly became infected with brown rot, but little extension occurred to trees which had not been submerged. In the Ourimbah (C.C.) area where temperatures were a few degrees higher, extension of fruit infection occurred in some non-flooded orchards. In all areas leaf infection was slight and twig injury negligible, except in a few orchards where submergence had lasted for over seven days. Root injury was serious only in areas of heavy soil and poor drainage where the trees were affected in some degree previously. In these orchards yellowing and die-back occurred in November when hot drier conditions commenced. In April, local flooding occurred along parts of the Hawkesbury River resulting in banking up of creeks and covering of low areas with very slow-moving water. Submergence of trees lasted 5-8 days or more and temperatures were warm. All leaves and fruit were infected, twigs and branches killed back for 1-2 feet and lesions formed along branches and on the trunks. Washington Navel oranges were more severely killed back than Velencias. Seville oranges were very badly affected. The amount of root injury was not excessive immediately following the flood, but a full estimate of the damage done will not be possible till late Spring.

BROWN ROT (Phytophthora citrophthora) was more general than for many years in the Autumn in Coastal orchards on ripening Washington Navel oranges. Lemons and Siletta oranges were also affected but Valencias generally were not attacked. The amount of disease varied greatly from block to block. Sprays, where applied, gave good control. Generally, only fruit on the lower part of the trees was affected but in all orchards where the disease occurred a few trees were observed where 100% fruit infection took place. Many cases were seen where brown rot occurred in blocks of very vigorous trees, both on rough lemon and trifoliata rootstocks. It was also observed that brown rot fruit infection was more serious where fowls were ranged in the orchard.

BLACK SPOT (Guignardia citricarpa) was not very important in the late Spring in the Gosford district. Generally speaking, very satisfactory control of the disease was obtained following the use of recommended programmes. Some increase in Black Spot development occurred early in December in some orchards.

Export of Valencia oranges was again made to Hong Kong and Singapore from Gosford orchards during the late Spring and Summer. Fruit was selected only from trees of less than thirteen years of age which had been sprayed with Bordeaux mixture. Very satisfactory reports were again received from overseas buyers. This is the second season during which Valencias have been successfully exported under the new system of controlled selection of suitable orchards.

Moderate infection of intermediate crop lemons and Valencia oranges was reported from the Hills district (M.A.).

SEPTORIA SPOT (Septoria depressa). Moderate to heavy infection of Washington Navel oranges and Marsh grapefruit occurred in the M.I.A. in late Winter, 1949, and some shipments to New Zealand had to be condemned. Losses, however, were less than in the previous season. Damage to Valencia oranges was negligible. In previous years a single application of Bordeaux mixture in March or April had given almost complete control of this disease but, in 1949, this proved ineffective. A fortnight of almost continuous rain from the end of February, 1949, permitted infection to take place unusually early before most growers had applied the spray. This was proved by the development of spot on fruit which was bagged on 14th March for inoculation experiments and which remained covered till early August. Infection, therefore, occurred while the fruit was still green and not full-sized but it remained latent until the end of July. The appearance of fruit spot followed a week of unusually heavy frosts in mid-July. Cold temperatures appeared to stimulate the further development of the latent mycelium since fruit inoculated and bagged in a Sydney locality in April developed no spot, though latent infections were shown by cultural means to be present in the rind when the fruit was harvested in August. The disease development in Winter, 1950, has been quite different. Infection occurred during a week of continuous wet weather from 28th March, 1950, and sprays applied after that date were ineffective in control. In previous years a close correlation has existed between frosting and spot development. This relationship did not occur this season. The first spot, which was slightly atypical and reminiscent of oleocellosis, was seen in early June, 6-8 weeks earlier than customary. Up till then only a few very mild frosts had been experienced. The first evidence of spot showed up following a period of cold driving rain on 28th May. Infection was severe

on fruit high on the south-west side of the tree as well as the customary position low on the southern side. It is clear, therefore, that frosting is not the only factor capable of producing in the rind a condition favourable to the development of lesions from latent infections. Losses so far of Thompson and Washington Navel oranges have been moderate to heavy and some shipments of fruit for the United Kingdom have had to be condemned. Infection of Valencias has also been locally heavy.

SCAB (Sphaceloma fawcettii scabiosa). Maincrop lemons in Hills district (M.A.) and Kurrajong (C.T.) orchards were comparatively free of scab. In several Mangrove Mountain (C.C.) orchards considerable disfigurement of maincrop lemons occurred despite the use of strong Bordeaux mixture sprays. Intermediate settings in Hills district (M.A.) and Central Coast orchards were heavily infected because of wet or humid conditions at flowering. Scab was also recorded on a few Washington Navel fruit at Ourimbah (C.C.) and on Seville oranges at Narara Viticultural Nursery (C.C.) and Colo (C.T.). Foliage infection of lemons was particularly severe. Heavy infection of nursery stock of rough lemon occurred in Metropolitan, Narara, Gosford, Somersby and Terrigal (C.C.) nurseries, resulting in reduced vigour.

MELANOSE (Diaporthe citri). Spring infection in Hills District and Hawkesbury River orchards (M.A.) was slight to moderate on unsprayed fruit, being worst on old Washington Navel orange trees. Late Summer infection of maincrop Emporor mandarins took place in several Hawkesbury River orchards. In the Gosford district (C.C.) little infection developed on Valencia orange or lemon fruit but infection of maincrop Washington Navel oranges was seen in some orchards at Lisarow and Niagara Park (C.C.). Early Autumn rains resulted in a fairly general development of infection on Autumn growth. On trees cut back in early Spring heavy development of melanose caused die-back of new shoots and, in some cases, of the older wood also. Application of waterproofing paint to the cut surfaces appears to be of considerable value in minimising the infection.

MANDARIN BROWN SPOT (Cause not known) which has not been much in evidence since the wet seasons of the early 1930's, was general on Emperor mandarins in Coastal orchards. Fruit infection caused slight to moderate losses in the Hawkesbury River and Hills districts (M.A.) and at Wyong and Newcastle (C.C.) Die-back and leaf-spotting of Autumn growth was recorded on young trees at Ebenezer (M.A.) and Somersby (C.C.).

GREEN and BLUE MOULDS (Penicillium digitatum and P. italicum). Slight to moderate losses occurred of second crop Valencia oranges and mandarins in the Hills district and Hawkesbury River (M.A.) and of maincrop Washington Navel oranges in the Hawkesbury River (M.A.) and Gosford (C.C.) areas. Infection was often associated with fruit fly attack. Moulds were not important in fruit wastage in packing houses in the Gosford district, though some "nesting" due to P. digitatum was observed in experimental packs of fruit.

ARMILLARIA ROOT ROT (Armillaria mellea) continues to cause considerable loss of trees and reduction in vigour in orchards in the Mangrove Mountain-Somersby area (C.C.), at Maroota (M.A.) and in the Hawkesbury River district (M.A.).

SOOTY BLOTCH and FLY SPECK (Gloeodes pomigena and Leptothyrium pomi) were very general in Coastal orchards on unsprayed Washington Navel oranges and Wheeny and Marsh grapefruit. Petal-fall sprays of Bordeaux mixture were not adequate to protect fruit.

DAMPING OFF (Rhizoctonia solani). Slight losses of seedling citrus stocks occurred in several Metropolitan nurseries.

SCLEROTINIA BLIGHT (Sclerotinia sclerotiorum). A light infection of yearling lemon trees was noted at Peats Ridge (C.C.) in early Spring, 1949. Infection of seedlings in Metropolitan nurseries was of negligible importance.

CITRUS BLAST (Pseudomonas syringae). Heavy fruit, foliage and twig infection of lemons was noted at Orange in early Spring, 1949. Cherries in this locality are subject to die-back due to the same organism.

STUNT BUSH (Stem Pitting or Xyloporosis virus). This virus disease, recently described from South Africa, has been found to be fairly widespread in Coastal and M.I.A. citrus areas. The symptoms are stunted, bushy growth, rather elongated depressions in the wood of the trunk and main limbs and small thick-skinned fruit of no value. [illegible] and Marsh grapefruit are most severely affected but wood symptoms only have been seen on Duncan grapefruit, Knight citron, Ellendale mandarin and Siletta orange. In grapefruit the severity of the disease varies considerably. Some trees are badly stunted, bearing crops of severely malformed and undersized fruit. Other trees, although showing moderate stem pitting, do not appear to be otherwise adversely affected. Washington Navel orange, Eureka lemon, Imperial mandarin, Wheeny grapefruit and Seville orange, top-worked onto affected Marsh grapefruit, grow very well and without detectable symptoms. The disease was first seen in Terrigal and Somersby orchards (C.C.) about ten years ago and was at first thought to be nutritional.

SCALY BUTT (Virus). Several new records were noted of unduly high percentage of scaly butt developing in young Valencia trees and Marsh grapefruit on trifoliata stock.

PSOROSIS (Virus) was recorded from a new locality at Lisarow (C.C.). A number of 20-year-old Washington Navel orange trees was affected, some severely.

SHELL BARK (Suspected virus) was reported on Eureka lemons twelve years old and older at Tocumwal, Barooga (R.) and Coomealla (W.D.) and on 38-year-old Eureka lemons at Gosford (C.C.).

EXANTHEMA (Copper deficiency) is still one of the most serious diseases affecting all varieties of citrus in the Central Coast area. Beneficial results have been observed following upon both soil application of bluestone and sprays of Bordeaux mixture to trees. The improvements observed following upon treatment are greatly improved leaf cover, improved leaf size, dark green colour of foliage, absence of die-back, better fruit size and increased growth of tree. The routine Bordeaux spraying of trees and the application of bluestone to the soil as a preventive for exanthema is now being widely practised in the Gosford district.

YELLOW LEAF (Magnesium deficiency) was very prevalent in many orchards in the Central Coast and Hills and Hawkesbury River districts (M.A.) by the late Autumn. Big crops of Valencias, Navels and lemons, causing a heavy nutritional drain on trees, and heavy leaching rains that depleted the soil of much of its remaining magnesium, were responsible for the development of severe yellow leaf symptoms. Application of best quality dolomite shows little result for up to two years.

Magnesium deficiency symptoms were noted on citrus, chiefly lemons, in sandy soil at Barooga and Barham (R.). Calcium deficiency symptoms were associated at Barooga.

MOTTLE LEAF (Zinc deficiency) was noted in most citrus areas in the western part of the State. It was also reported from Young (S.W.S.), Gilgandra (C.W.S.) and Tamworth (N.W.S.). Mild symptoms were more general than had previously been seen in the Hills and Hawkesbury River districts (M.A.). In one Pitt Town orchard (M.A.) very severe symptoms, causing stunting and die-back, were seen. In the Gosford district (C.C.) zinc deficiency symptoms are usually associated with severe exanthema and diminish in intensity when the exanthemous condition is corrected.

GOLDEN TOP (Manganese excess). No records.

BURNT LEAF (Potassium deficiency). No records.

ACID SOIL INJURY. Young trees of Valencia orange on trifoliata stock in several orchards in the Gosford-Ourimbah area (C.C.) developed a severe rotting of fibrous and young main roots in late Spring, 1949, though some had made excellent early Spring root growth. This resulted in stunted poor growth, leaf drop and wilting. A survey of the area showed that the condition occurred only in very acid soils (pH 3.8 to 4.4). Rough lemon stocks in similar soil were not affected in the same way.

WATER SPOT (Non-parasitic) caused slight to moderate loss of Washington Navel oranges at Somersby (C.C.) and Kurrajong (C.W.) during late Winter, 1949, following heavy rain.

DRY STEM (Non-parasitic) was reported causing very slight losses of late-bearing Valencia oranges from several M.I.A. and Murray River localities (W.D.). In one Griffith orchard (M.I.A.) a total of 300 bushels of fruit from 1500 trees was lost.

WHEENY GRAPEFRUIT DIE-BACK (Probably nutritional) was reported from a number of Coastal orchards.

UNTHRIFTINESS OF ELLENDALE MANDARINS. Ellendale mandarin trees on rough lemon stock become sparse of foliage and crop poorly soon after reaching bearing age. Examples were seen in orchards at Bonnie Cliffs, Coomealla (W.D.) and Kurrajong (C.T.). At Bonnie Cliffs adjacent trees on sweet orange stock were in excellent condition. This may be a stock-scion reaction.

DIE-BACK OF SMOOTH SEVILLE ORANGES. This condition, which may be a stock-scion reaction, was seen in Sevilles on rough lemon stock at Coomealla (W.D.) and Upper Colo (C.T.). Affected trees show a thinning out of the foliage at the top of the tree and the production of small dull leaves and poor crops.

FROST INJURY. More frequent and heavier than average frosts occurred in the M.I.A. and Upper Murray River area (R.) during Winter, 1949. This resulted in direct freezing injury, especially to lemons and Washington Navel oranges and drying out of Valencia orange fruit, and losses were particularly heavy. Killing back of lemon trees was also general and severe, except in protected blocks. In the Murray settlements heavy infestations of red scale and the impracticability of fumigation necessitated oil sprays and a considerable number of growers applied 2½% oil as late as May. This greatly increased the frost damage. Heavy frost damage in low-lying areas, especially to lemon trees, was reported from the Young district (S.W.S.).

FRUIT FALL. A moderate fall of maturing Emperor mandarins and Washington Navel oranges followed wet late Autumn weather in some Hawkesbury River settlements (M.A.). Fruit fall was reported of overcropping Thorny mandarins from a number of Metropolitan home gardens.

LEAF FALL was heavy, especially in lemons, towards the end of April in the Hills district (M.A.) after several months of rain.

LIGHTNING INJURY. A case of what is thought to be lightning injury was reported from a Maroota (M.A.) orchard on vigorous young Valencia orange trees. One tree had been killed and others in a circle showed more or less branch and twig injury, varying from death of bark in a continuous or discontinuous strip along one side of a branch, to slight scalding of young shoots involving only epidermal and 1-2 layers of cells beneath, leaving islands of green tissue around the petiole. Leaves were unaffected.

LEAF PUCKERING OF WHEENY GRAPEFRUIT (Temperature effect) was reported on spring foliage from Coastal localities.

SOOTY MOULDS (Capnodium spp., etc.). Heavy development of white wax scale in Hills district (M.A.) orchards was followed by a heavy growth of sooty mould and consequent fruit blemish.

FELT FUNGUS (Septobasidium pseudopedicellatum) was rather common on trees in the more humid parts of the Central and North Coasts.

CITRUS INSECT PARASITES. Very humid weather encouraged the development of fungous parasites of scale insects in the Gosford district (C.C.) and parts of the Hills district (M.A.). Sphaerostilbe aurantiicola, chiefly in the imperfect stage, was very common on yellow scale, Podonectria coccicola on unidentified scale and Myriangium monteignei on citrus louse were locally abundant.

POME FRUITS.

A potentially heavy pome fruit crop was materially reduced by black spot this season in all districts except the Murrumbidgee Irrigation Areas. Persistent wet weather seriously interfered with the application of control measures.

APPLE.

BLACK SPOT (Venturia inaequalis). A record epiphytotic of black spot occurred throughout New South Wales (except in the M.I.A.) this season. Individual losses of up to 100% of the more susceptible varieties were fairly common in areas such as Kentucky (N.T.), Bathurst (C.T.) and Young (S.W.S.) where growers are not used to combating the disease under such severe conditions. Better control was obtained in areas such as Batlow (S.W.S.) and Orange (C.T.) where growers have had much more experience in combating the disease.

The disease occurred for the first time at the New England Experiment Farm at Glen Innes (N.T.) and in a number of orchards at Uralla and Armidale (N.T.). There was no evidence of infection in the M.I.A.

In fungicide testing experiments T.M.T.D. (tetramethyl thiuramdisulphide) gave better control, both in the field and after a period in cool storage, than did the standard lime-sulphur programme.

The disease has developed to a marked degree in cool stored fruit, much of which has had to be reclassified into a lower grade, or rejected entirely.

POWDERY MILDEW (Podosphaera leucotricha). Extensive damage to the Jonathan variety has been reported from Bathurst (C.T.), Young (S.W.S.), the Northern Tablelands and some Coastal orchards. A moderate degree of infection was observed on apple stocks in a nursery at Carlingford (M.A.).

DIE-BACK (Dothiorella sp.). Again the limb canker phase was not apparent but a blighting of spurs, buds and terminal shoots, with which the fungus is associated, was quite prevalent on the varieties Willie Sharp, Carrington and Granny Smith throughout the Hills district (M.A.). Preliminary investigations of this phase of the disease complex indicate that, with the early maturing varieties Carrington and Willie Sharp, almost complete control may be achieved using a strong Bordeaux spray (15-15-100-½) at green-tip and some other spray immediately after harvest in January.

McINTOSH RED TRUNK CANKER (? Dothiorella sp.) was of no consequence this season, except that many old cankers have been invaded by Schizophyllum commune.

RIPE ROT (Glomerella cingulata) caused considerable losses in some Coastal orchards, especially in fruit which was allowed to become somewhat over-mature on the tree.

PINK LIMB BLIGHT (Corticium salmonicola). An instance of heavy infection was recorded in an orchard near Gosford (C.C.). Limbs up to four inches in diameter were involved, as well as small spurs and twigs. Large areas of bark were involved but not the wood, branches being ringbarked in some cases. The bark was rotted and sour smelling, with a fine external mycelial growth, pink at first and later turning white. Extensive damage was done to the framework of these trees.

ROOT ROT (Armillaria mellea) was noted at Batlow (S.W.S.

HEART ROT (Schizophyllum commune) was noted on old trees at Orange and in some Coastal orchards. Invasion of old cankers on the trunks and limbs of the McIntosh Red variety was noted at Oakdale (S.C.). A number of limbs had been killed.

YELLOW WOOD ROT (Polystictus versicolor) was noted on occasional old trees throughout the State.

WATER CORE (Physiological) was of fairly general occurrence throughout the State but, with the exception of early maturing varieties in Coastal districts, it was not of economic importance. In the Hills District (M.A.) the disease was widespread and severe following two rather violent temperature fluctuations in early January, with soil moisture at a high level. A considerable amount of watercore breakdown occurred.

BITTER PIT (Physiological) was not of major importance this season, trace amounts being reported from most districts.

JONATHAN SPOT (Physiological) was recorded at Yanco (M.I.A.). Occasional specimens were received from other centres.

BORON DEFICIENCY. Crop losses from this trouble are now very rare.

LITTLE LEAF (Zinc deficiency) was recorded on untreated trees in the M.I.A. and from alluvial river flats near Singleton (C.C.). Good results from dormant spraying were reported from Bilpin (C.T.).

INTERNAL BARK NECROSIS or MEASLES (Manganese toxicity). In the case reported last year, chemical analysis revealed a manganese level in leaves from affected trees which was approximately sixteen times higher than that in leaves from healthy trees.

HAIL. The heaviest losses from hail this season were sustained on the Northern Tablelands.

FLECK (Fabraea maculata). A slight infection was recorded on 4-year-old Gravenstein trees at Cobbity (M.A.).

VARIEGATION (? Virus) was less obvious this season, though encountered throughout the State.

SOOTY BLOTCH (Gloeodes pomigena) was recorded from Moruya, Oakdale and Camden (S.C.) and some localities through the Hills District (M.A.).

BORDEAUX MIXTURE SPRAY INJURY. In experimental plots at Dural (M.A.) Bordeaux mixture 3-3-100-½, applied to the early maturing varieties Carrington and Willie Sharp in January soon after harvest, caused extensive leaf injury and heavy defoliation in the former variety. The injury to Willie Sharp was confined to a slight purplish spotting of the leaves. The Carrington trees blossomed during the Autumn following this defoliation.

Also, in experimental plots at Orange (C.T.), a Bordeaux mixture spray (3-3-100-½) applied in March to the variety Granny Smith about three weeks prior to harvesting, caused considerable leaf injury and defoliation, which was

followed by a heavy shedding of fruit. This spray was the third of a series applied from January onwards and was the only one of the series to cause injury. This last spray was followed by several days of rain and high winds.

PEAR.

BLACK SPOT (Venturia pyrina) occurred throughout the State (except M.I.A.) in the heaviest outbreak of the post-war period. The inoculum of pear scab appears to have been slower to build up after the drought years 1944-46 than has that of apple scab. However, the pear disease has gained much momentum this season and is again a serious problem in many districts. At Young (S.W.S.) pear scab was rarely observed, whereas apple scab was very serious. At Orange (C.T.) pear scab was much less serious than it was at Batlow (S.W.S.), although the incidence of apple scab was comparable in these two districts.

STONY PIT (Virus) was recorded for the first time in Williams pears growing at Lakesland (S.C.). Packham's Triumph trees growing nearby were unaffected.

BORON DEFICIENCY. As knowledge of the borax treatment extends, this trouble is becoming more rare.

HAIL caused heavy damage in many orchards at Kentucky (N.T.).

WATER CORE (Physiological) was observed in Coastal-grown pears.

LIME-INDUCED CHLOROSIS (Iron deficiency) was recorded at Pomona (W.D.).

QUINCE.

FLECK (Fabraea maculata) occurred throughout the State, with the exception of the Murrumbidgee Irrigation Areas. Quince trees in Coastal areas were defoliated as early as December. The disease was again noted on quince stocks in nurseries.

BURR KNOT (Non-parasitic) is of general occurrence on quince trees throughout the State.

STONE FRUITS.

Throughout the State a heavy stone fruit crop was set at this season, but by harvest time it had been considerably reduced by the inroads of various diseases. Stone fruit growers experienced a very difficult season, which was persistently wet from the outset in practically all districts.

ALMOND.

SHOT HOLE (Clasterosporium carpophilum). Infection was severe on unsprayed trees, especially at Young (S.W.S.) and in the Murrumbidgee Irrigation Areas. Leaf-fall and bud-burst Bordeaux sprays gave commercial control at Young. Infection was particularly severe in irrigation settlements along the Murray River (R.).

RUST (Puccinia pruni-spinosae) caused premature defoliation at Young (S.W.S.), and also occurred in the M.I.A.

APRICOT.

BACTERIAL CANKER (Pseudomonas syringae). Young trees again suffered at Leeton (M.I.A.) but the disease was less serious than last season. The shoot blight phase was fairly common but the greatest damage was due to stem cankers.

BROWN ROT (Sclerotinia fructicola). Some early infection was noted at Griffith (M.I.A.). However, brown rot was not serious in any but later maturing varieties grown in Coastal districts, where some heavy losses were sustained. Heaviest losses occurred along the Hawkesbury River (M.A.).

SHOT HOLE (Clasterosporium carpophilum). Severe fruit infection occurred in the M.I.A. but the scabs flaked off before harvest. However, heavy losses were sustained in many Coastal orchards and especially in the Windsor-East Kurrajong area (M.A.). Most growers in these latter areas rely on one Winter fungicide application, but this proved inadequate under the severe conditions prevailing this season. The leaf-fall and bud-burst Bordeaux spray programme did not appear to give an adequate commercial control on the M.I.A. Infection at Young (S.W.S.) was heavy and much fruit was ruined. Losses were also sustained in the smaller plantings in other inland and Tableland areas. Infection was heavy in irrigation settlements along the Murray River (R.).

FRECKLE (Cladosporium carpophilum). Losses from freckle in early maturing varieties were very severe this season in the Hills District and the Windsor-East Kurrajong area (M.A.), up to 80% of the crop being infected in some instances. Foliage was also attacked with subsequent premature defoliation. A severe attack was also reported from Leets Vale (M.A.) where young seedlings growing in the orchard were blighted.

BLACK HEART (Verticillium dahliae). Further reports of the occurrence of this disease on the M.I.A. have been received. In each case tomatoes have preceded the apricot planting or have been interplanted with the trees. The area most generally affected lies between Yenda and Griffith (M.I.A.).

RUST (Puccinia pruni-spinosae) caused premature defoliation in the Hills District (M.A.) and at Griffith (M.I.A.).

SHOOT BLIGHT and FRUIT ROT (Sclerotinia sclerotiorum). Infection of young fruit was general through the Windsor-East Kurrajong area (M.A.). Occasional shoots were killed by this fungus.

WOOD ROT (Polystictus versicolor). This fungus was noted to be fruiting freely in old orchards on the M.A.I. this season.

LEAF CURL (Taphrina deformans) was of general occurrence through the East Kurrajong area, although the infection was confined to one or two shoots per tree. Occasional fruits were infected. Shoot infection was also recorded at Leeton (M.I.A.).

POWDERY MILDEW (Sphaerotheca pannosa var. persicae) was recorded at Hanwood (M.I.A.).

LIME-INDUCED CHLOROSIS (Iron deficiency) was recorded at Griffith (M.I.A.).

INTERNAL BREAKDOWN (Non-parasitic) was of no consequence on the M.I.A. this season.

CHERRY.

BACTERIAL CANKER (Pseudomonas syringae) was again a serious problem in the establishment of young cherry plantings at Orange (C.T.), but the disease was not quite as serious as it was in the previous season. A considerable amount of leaf infection occurred but the amount of fruit infection was very slight. Stem infection was also recorded at Uralla (N.T.).

CHERRY LEAF SPOT (Coccomyces hiemalis) was recorded for the first time in New South Wales. The outbreaks occurred in four nurseries in the Metropolitan Area and in one at Wyong (C.C.). Extensive surveys revealed that it has not yet reached any of the commercial cherry-growing areas. The introduction appears to be of European origin as each outbreak has been in trees worked on imported stocks from that source.

BROWN ROT (Sclerotinia fructicola) caused appreciable losses in some orchards at Orange (C.T.) this season, but an anticipated epiphytotic failed to develop.

SHOT HOLE (Clasterosporium carpophilum) was of widespread occurrence.

LEAF SPOT (Cercospora circumcissa). This disease was recorded in slight degree from various centres throughout the State. A heavy infection was recorded on nursery trees in the Metropolitan Area.

CRACKING OF FRUIT. Rain splitting and hail damaged thousands of cases in the Young district (S.W.S.).

NECTARINE.

BROWN ROT (Sclerotinia fructicola). Moderate losses were sustained in the Orange (C.T.) district. Although some crops were a total loss, reasonably good control was achieved in most orchards. Heavy infection was recorded at Young (S.W.S.), the worst outbreak experienced in that district.

LEAF CURL (Taphrina deformans). An epiphytotic of this disease occurred throughout the State wherever control measures were neglected or imperfectly applied.

RUST (Puccinia pruni-spinosae) caused premature defoliation in Coastal districts, and was also recorded from many inland centres. A heavy attack on the fruit was recorded at Condobolin (C.W.P.). On the M.I.A., leaf infection on nectarine was observed earlier than on peach and early defoliation ensued.

CROWN GALL (Agrobacterium tumefaciens) was again a problem in nursery propagation.

FRECKLE (Cladosporium carpophilum) was prevalent at Young (S.W.S.) and on Coastal-grown nectarines.

SHOT HOLE (Clasterosporium carpophilum) was of general occurrence on leaves.

SHRIVEL (Non-parasitic). This condition caused considerable losses in the Young district (S.W.S.) following stormy conditions accompanied by sold couth-easterly winds of gale force during the week ending 20th January. The same condition is reported to have occurred at Young several years ago when strong, cold south-easterly winds blew for two days when the fruit was approaching maturity.

PEACH.

BROWN ROT (Sclerotinia fructicola). An epiphytotic of this disease caused very heavy losses in early maturing varieties in Coastal districts. The mid-season varieties were also affected but the late maturing ones largely escaped the disease as somewhat drier weather prevailed in early January when these varieties were approaching maturity. The disease again reached epiphytotic proportions on the M.I.A. in the late canning variety, Pullar's Cling. The loss in this variety was estimated at approximately 60%. The incidence of brown rot in the earlier varieties, Phillips' Cling and Golden Queen, was negligible. Some heavy losses were sustained in Tableland areas but generally the incidence was much lower than anticipated in these districts. At Young (S.W.S.) the later maturing varieties were heavily attacked.

RUST (Puccinia pruni-spinosae) assumed epiphytotic proportions on Coastal trees during this abnormally wet season. Leaf infection was detected on the variety, Watt's Early Champion, as early as mid-September. In many orchards this and other early maturing varieties were defoliated before the end of December. Occasional instances of fruit infection were noted in mid-season and late maturing varieties in the Hills District (M.A.). Slight fruit infection occurred on canning varieties in the M.I.A. Heavy leaf infection developed late in the season. The inoculum of this disease appears to be building up in Tableland areas and reports of widespread development of rust were received from some of these districts.

LEAF CURL (Taphrina deformans). An epiphytotic of this disease occurred throughout the State (except the M.I.A.) wherever control measures were neglected or imperfectly applied. Many growers, and especially those with early maturing varieties in Coastal districts, were unable to spray their trees at the correct time because of the unavailability of fungicides occasioned by a protracted industrial disturbance.

CROWN GALL (Agrobacterium tumefaciens) continues to be a problem in nursery propagation. The disease has been observed in orchards throughout the State.

FRECKLE (Cladosporium carpophilum) was recorded at Young (S.W.S.) and on late maturing varieties in Coastal orchards. No serious loss was reported.

SHOT HOLE (Clasterosporium carpophilum) was observed throughout the State. On the M.I.A. the disease is becoming increasingly important in canning peaches. Fruit infection was recorded there in minor degree last season. However, this season, fruit infection was observed in several orchards, especially at Lakeview (M.I.A.), where it was noted last season. In one orchard, the loss of fruit for canning was estimated at approximately 10 to 15%. Leaf infection on the variety Phillips' Cling was particularly severe.

In a nursery at Orange (C.T.) seedling peach stocks were severely blighted by inoculum disseminated from a heavily infected almond tree growing beside the peach planting.

POWDERY MILDEW (Sphaerotheca pannosa) again occured in the orchard at Stanbridge (M.I.A.) from which it was recorded last season. The attack, which was more severe and general than last season, was again confined to the fruit. Elsewhere on the M.I.A. the disease occurred only on odd trees.

ROOT ROT (Phytophthora cinnamomi) was again recorded on young trees and nursery stock growing in heavy soil in the Metropolitan Area.

ZINC DEFICIENCY was recorded from alluvial river flats near Singleton (C.C.).

MANGANESE DEFICIENCY symptoms again appeared in trees at North Ryde (M.A.) which had responded to foliage spraying treatment last season.

SPOILAGE. In this excessively wet season, fruit splitting was experienced to some degree in most districts and subsequent losses from spoilage were substantial, especially where fruit had to be held for some time prior to canning.

LIME-INDUCED CHLOROSIS was recorded at Pomona (W.D.).

BORDEAUX MIXTURE SPRAY INJURY occurred in two orchards at Wamoon (M.I.A.) following the application of 2-2-100-½ Bordeaux mixture spray in mid-October for rust control. Normally, this spray is reasonably safe on the M.I.A. However, on this occasion, moist weather conditions followed the application of the spray and also the trees concerned had been infested with aphids a little earlier in the season.

PLUM.

BROWN ROT (Sclerotinia fructicola) caused heavy losses in many orchards in the Orange district (C.T.) where the incidence of the disease approached the intensity of an epiphytotic. In occasional orchards, the plum crop was a total loss. Serious outbreaks also occurred at Young (S.W.S.), Batlow (S.W.S.) and in Coastal districts.

RUST (Puccinia pruni-spinosae) caused premature defoliation throughout the State, the disease being particularly severe on plums at Orange (C.T.) and in the Hills District (M.A.), and also on prunes at Young (S.W.S.) and on the M.I.A. In each of those districts except Orange, Autumn blossoming occurred. Excellent control of rust on prunes, with the programme of weak Bordeaux mixture sprays, was demonstrated at Young. This programme continues to give good results on the M.I.A.

PRUNE DIE-BACK (Cause undetermined) continues to be a problem on the M.I.A. The frequent early defoliation due to rust is believed to be an important factor in this complex.

CROWN GALL (Agrobacterium tumefaciens) again caused substantial losses in nurseries and in young orchard plantings.

SHOT HOLE (Clasterosporium carpophilum) occurred throughout the State and occasioned much leaf damage.

PLUM POCKETS (Taphrina pruni) was recorded at Blackheath (C.T.).

TROPICAL FRUITS.

AVOCADO PEAR.

ROOT ROT (Phytophthora cinnamomi). Pathogen was isolated in January from roots of seedling trees from Korora (N.C.) which showed die-back of the branches.

BANANA.

BUNCHY TOP (Virus). Records compiled by the Division of Horticulture show an incidence of 5,385 stools destroyed in an inspection acreage of 103,012. No bunchy top was detected in the Clarence or Yarrahappini (N.C.) areas. Last occurrence in Yarrahappini was on 10.4.1947. Banana acreage for the State is 26,198 acres.

LEAF SPOT (Cercospora musae) again caused considerable losses in the Tweed and Brunswick (N.C.) districts in unsprayed plantations. In some plantations the disease was more destructive than usual, which was attributed to seasonal conditions. Adoption of spraying by growers has increased during the year but most growers still do not undertake control measures. Excellent control of leaf spot and speckle was again obtained by spraying with Bordeaux mixture and colloidal sulphur at the demonstration plots at Duranbah (N.C.).

RUBBERY BANANAS (Cause undetermined). This disease was encountered in one consignment of fruit from a plantation in Doon Doon (N.C.) in November. Plantation is in "forest" country and it is probable that the area from which the fruit came is on its first cut.

SQUIRTER (Nigrospora sphaerica). Following the introduction of legislation against this disease it has practically disappeared as a market problem. Since May, 1949, all fruit sold in this State during winter months must be dipped after packing in dilute salicylanilide or its sodium salt. Not only has squirter been practically eliminated, but fruit has improved greatly in appearance owing to control also of BLACK END (Gloeosporium musarum, Nigrospora sphaerica, etc.) which previously often disfigured fruit.

CUSTARD APPLE.

LEAF SCALD, DIEBACK and BROWN ROT (Phytophthora sp.) appeared again this year in the plantation from which it was first reported in 1948-49.

MANGO.

LEAF and TWIG BLIGHT (Gloeosporium sp.) was reported from Grafton (N.C.).

PAPAW.

CRINKLE (Virus). This disease was again general in North Coast plantations. Dieback occurred in most plantations during Summer months and may be related to Crinkle, although evidence is slender.

POWDERY MILDEW (Oidium sp.). First symptoms of this disease appeared in April in North Coast plantations and affected the youngest foliage of most plants by mottling and speckling.

PASSIONFRUIT.

BROWN SPOT (Alternaria passiflorae) was unusually destructive in unsprayed or partially sprayed plantations. At Sackville Reach (M.A.) heavy leaf and stem attack in December practically defoliated some plantations.

COLLAR ROT (Sclerotinia sclerotiorum) was general in the Hills district (M.A.) in the Spring. The season commenced cool and wet.

WOODINESS (Virus). This disease is widespread and constitutes a serious problem by shortening the productive life of plantations. During the Autumn a flush of growth occurred in most plantations and the new foliage was prominently spotted with yellow (yellow spot symptom).

PINEAPPLE.

WILT (Cause undetermined). This disease again caused losses in late Spring and early Summer in most old plantings in far North Coast districts.

YELLOW SPOT (? Spotted wilt virus). Scattered plants affected with this disease were obse ved in a 3-acre plantation, four years old, at Bagotville (N.C.) in varieties Smooth Leaf Cayenne and Ripley Queen in February.

MISCELLANEOUS FRUITS.

FIG.

LEAF SPOT (Phyllosticta sycophyla) was reported on the variety Brown Turkey from several Metropolitan localities.

BROWN ROT (Phytophthora palmivora), reported for the first time in N.S.W. on this host, caused the almost total loss of a crop of White Adriatic figs in a Metropolitan garden. No leaf or twig damage was observed but fruit of all ages was attacked following about fourteen days of almost continuous rain in March-April.

RIPE ROT (Glomerella cingulata) was recorded on Blue Provence fig from a Metropolitan locality.

SALT INJURY was recorded at Deniliquin (R.).

GRAPES.

The unusual season was reflected by disease development in no crop more clearly than grapes.

DOWNY MILDEW (Plasmopara viticola). An early and general outbreak of this disease occurred in most parts of the State. In Coastal districts weather conditions made it difficult or impossible to apply sprays often enough or correctly timed. Vineyards in the Hunter River district (C.C.) suffered most severely, especially those which had been flooded in the preceding Winter. The disease appeared here first in early October. As well as foliage attack, heavy infection of flowers and young bunches occurred. The disease continued throughout the Summer and resulted in a much reduced tonnage for the vintage and also the killing of canes. A heavier development of mildew occurred in the North-Western Plains division than had previously been recorded and in many localities it was recorded for the first time. Infection in the Orange (C.T.) and Molong (C.W.S.) districts was also heavy, but was held where sprays were applied. In the Murray River (W.D.) settlements and in the M.I.A. an outbreak occurred in the early Summer but was checked by spray applications. Isabella varieties grown for home use in the Metropolitan Area and Central Coast were moderately to severely attacked. These varieties are normally fairly resistant.

BLACK SPOT (Elsinoe ampelina) developed to an unprecedented extent on susceptible varieties in all sections. The first attack appeared early on Spring growth of the very susceptible Sultana variety in some Murray River (W.D.) settlements. Where regular and frequent spraying was carried out, this outbreak was checked, but lesions on the base of canes, as well as being points of mechanical weakness, will provide a source of infection for next season. At the Murray River Irrigation Settlement of Koraleigh (W.D.) the incidence of the disease was particularly heavy. Up to twelve applications of Bordeaux mixture were found necessary to give reasonable control Copper-oxychloride - sulphur dusts, which were used in some vineyards when the soil was too wet to carry a spray outfit, did not give as satisfactory control as Bordeaux mixture sprays. In the M.I.A., black spot also appeared early and, in spite of regular applications of Bordeaux mixture, the extension of the disease was not checked on the Sultana variety. On unsprayed or inadequately sprayed vines in the M.I.A. spring shoots were killed back and later growth very badly affected. Elsewhere in the State black spot caused considerable damage in many Coastal and Tableland localities and also was reported from Moree and Coonabarabran (N.W.P.).

MOULD (Botrytis cinerea). Humid conditions throughout February resulted in heavy infection of table grapes in some vineyards in the Liverpool (M.A.) area. A high proportion of late maturing table grapes was moulded in the Orange and Borenore (C.T.) districts. In the M.I.A., moderate to fairly heavy mould development occurred in early maturing wine varieties, but later varieties maturing under drier conditions escaped with only slight damage. In the Lower Murray River Irrigation Settlements, abnormal rains were received in February and March and the humidity prior to and during the picking and drying season was high. Losses doe to Botrytis attack of fruit on the vines and moulding (Botrytis and other organisms) on the drying racks were the worst on record. The crop, particularly of sultanas, had been one of the largest and most promising.

POWDERY MILDEW (Uncinula vecator) was recorded from the Metropolitan Area, North Western Slopes and Lower Murray River Settlements (W.D.).

BITTER ROT (Melanconium fuligineum), which has not been seen for many years, caused heavy losses of ripening fruit of Isabella varieties in the Mt. George area (C.C.).

LEAF SPOT (Cercospora viticola) developed towards the end of the Summer on Isabella varieties in the Metropolitan Area.

STUNT (Virus disease of Black Shiraz) was reported from one additional vineyard in the Griffith area (M.I.A.).

RACHITISM (Cause not known). Specimens exhibiting symptoms of this disease were submitted from a Bega vineyard (S.C.). Vigour and fruiting were reported to be greatly reduced.

LOQUAT.

No record.

MULBERRY.

LEAF SPOT (Septogloeum mori). Severe infection was recorded throughout the State and many enquiries concerning this disease were received.

BACTERIAL BLIGHT (Pseudomonas mori) was of widespread occurrence but infection was not as general as the Septogloeum infection. Specimens showing both diseases were occasionaly received.

OLIVE.

LEAF SPOT (Cycloconium oleaginium) was reported from the Metropolitan Area.

SHRIVEL TOP (Physiological) was reported from Gilgandra (C.W.S.).

PERSIMMON.

ANTHRACNOSE (Gloeosporium diospyri) was recorded at Gosford (C.C.).

STRAWBERRY.

CRINKLE and YELLOW EDGE (Virus) were prevalent.

LEAF SPOT (Mycosphaerella fragariae), SCORCH (Diplocarpon earliana) and particularly BLIGHT (Dendrophoma obscurans) were prevalent during the season in Coastal and Tableland crops.

ROOT ROT (Rhizoctonia solani) was recorded from a number of Metropolitan and Tableland localities but generally was not as serious as in drier seasons.

WALNUT.

BACTERIAL BLIGHT (Xanthomonas juglandis) was of general occurrence.

ORNAMENTALS.

ACER SPP. (MAPLES).

LEAF SCORCH (Gloeosporium sp.). Marginal leaf scorching, which resulted in premature defoliation, was recorded from Armidale (N.T.), the Central Tablelands and Metropolitan Area during late Summer and early Autumn.

ANEMONE.

RUST (Puccinia pruni-spinosae). A very heavy infection of the aecidial stage of this rust was reported from Canberra (A.C.T.) in Spring, 1949.

ANTIRRHINUM.

SHOT HOLE BLIGHT (Heteropatella antirrhini) was prevalent and destructive during Spring and Autumn in the Metropolitan Area. It was also recorded from Leura (C.T.) during late Autumn.

DOWNY MILDEW (Peronospora antirrhini) was recorded on seedling plants from a number of Metropolitan nurseries. It was also seen causing considerable damage to a field crop in the flowering stage at Wyong (C.C.) following wet, cool Spring weather. Stem cracking and distortion and leaf injury occurred. Some varieties developed elongated pigmented areas on the stems in which oogonia were numerous.

COLLAR and ROOT ROT (Phytophthora sp.) was recorded from Jerilderie (R.) and the Metropolitan Area.

GREENING (Big Bud virus) was recorded from Griffith (M.I.A.) and the Metropolitan Area.

ROOT KNOT (Heterodera marioni) was prevalent as usual.

ASTER.

GREENING (Tomato Big Bud virus) was recorded from Weethalle (S.W.S.), Griffith (M.I.A.), the Metropolitan Area and the Central Coast during late Spring and Summer.

FUSARIUM WILT (Fusarium oxysporum callistephi) was recorded from a number of Metropolitan localities.

ROOT and CROWN ROT (Cause not determined) was recorded from the Metropolitan Area.

WHITE RUST (Cystopus ? cotula) was recorded from Guyra (N.T.).

AZALEA.

LEAF GALL (Exobasidium vacinii) was reported on susceptible varieties from a number of Metropolitan and Central Coast localities during Spring, 1949.

LEAF SPOT (Cercospora sp.), recorded for the first time on this host in N.S.W., caused considerable injury by premature defoliation of nursery stock at Kurrajong Heights and Mt. Tomah (C.T.) during Autumn.

COLLAR and ROOT ROT (Phytophthora cinnamomi) caused about 8% loss amongst nursery stock of the variety Exquisite, at Kurrajong Heights (C.T.).

CHLOROSIS (Insufficiently acid soil) was recorded from a number of Metropolitan localities.

BIRCH.

LEAF SPOTS (Gloeosporium betularum and Cylindrosporium betulae) were again prevalent and caused premature defoliation in a number of Central Tableland and Metropolitan localities.

CALENDULA.

RUST (Puccinia distincta) was prevalent as usual.

CALLA, YELLOW.

SPOTTED WILT (Tomato spotted wilt virus) was recorded from a Metropolitan locality.

CALLITRIS GLAUCA.

ROOT ROT (Rhizoctonia solani) was reported on seedlings in the Narrandera Forestry Nursery (R.). Affected plants showed an unhealthy bluish foliage tinge.

CAMELLIA.

ROOT ROT (Phytophthora cinnamomi) caused considerable damage to established trees at Kurrajong Heights (C.T.) and heavy losses in Metropolitan nurseries during late Summer and Autumn.

CANKER (Glomerella cingulata) caused heavy losses of susceptible varieties in one Metropolitan nursery.

VIRUS (? Tomato spotted wilt virus) was prevalent as usual.

CARNATION.

COLLAR ROT (Rhizoctonia solani) was less active than in the previous season. Reports of minor losses were received from Murwillumbah (N.C.), Armidale (N.T.), the Central Coast and Metropolitan Area.

ALTERNARIA LEAF SPOT (Alternaria dianthi) was recorded from a number of Metropolitan localities during Spring and Autumn. Following a period of prolonged rain in March, 1950, considerable petal spotting, similar to that caused by Botrytis cinerea, was noted on flowers of var. Frank Aldritt in a Metropolitan flower farm.

LEAF SPOT (Septoria dianthi) and RUST (Uromyces caryophyllinus) were prevalent in the Metropolitan Area.

LEAF SPOT (Heterosporium echinulatum) was reported from a Metropolitan locality in Spring, 1949.

MOSAIC (Virus) was widespread as usual.

ROOT KNOT (Heterodera marioni) was prevalent in the Metropolitan Area.

CASSIA.

VIRUS (? Tomato spotted wilt virus) was recorded from Ourimbah (C.C.).

CHRYSANTHEMUM.

LEAF NEMATODE (Aphelenchoides ritzema-bosi). Damage caused by this nematode was even worse than in the two previous seasons. Susceptible unsprayed crops were a total loss. Sprays of E.605 used at strengths of 1/1000 to 1/2000 of the active ingredient gave excellent control.

LEAF SPOT (Septoria chrysanthemella) and RUST (Puccinia chrysanthemi) were prevalent and destructive on susceptible varieties.

STUNT (? Cucumber mosaic virus) and SPOTTED WILT (tomato spotted wilt virus) were observed in some Metropolitan nurseries.

GREENING (Tomato Big Bud virus) was recorded from a Metropolitan garden.

SCLEROTINIA ROT (Sclerotinia sclerotiorum) was recorded on flowers from a Metropolitan garden.

CLIVEA MINIATA.

LEAF SCORCH (Stagonospora curtisii) was recorded from the Metropolitan Area.

CRATAEGUS OXYCANTHA, Hort. vars.

(Double flowering Hawthorns).

FLECK (Fabraea maculata). Recorded for the first time in N.S.W. on this host from a Metropolitan nursery, this disease caused extensive defoliation and badly marked berries of a number of hybrid varieties.

CRINUM.

RED STRIPE (Stagonospora curtisii) was recorded from the Metropolitan Area.

CUPRESSUS. (Cypress).

CANKER (Coryneum cardinale) was recorded, causing die-back of C. macrocarpa and C. funebris at Barham and Koraleigh (R.) and of C. funebris in the Metropolitan Area.

CANKER (Phomopsis sp.) was recorded from Castle Hill (M.A.) causing cankers on main limbs and twigs of C. arizonica. C. torulosa, associated with the affected trees, was not attacked and C. lambertiana suffered only minor twig injury.

ROOT ROT (Cause undertermined) was the cause of death of trees in the Metropolitan Area, Central Coast and Tablelands.

CYMBIDIUM.

MOSAIC (Virus) was fairly prevalent as usual.

LEAF SPOT (Colletotrichum orchidacearum). Continuously humid conditions during Summer and Autumn favoured the development of this disease in the Metropolitan Area.

FLOWER FAILURE. A case of failure to develop full size and colour, associated with a certain amount of greening and also bud drop, is thought to have been due to too heavy application of nitrogenous fertiliser associated with much less than average sunlight, in early Winter, 1950.

DAFFODIL.

MOSAIC (Virus) was prevalent as usual.

BASAL ROT (Fusarium bulbigenum) was recorded from the Metropolitan Area and from Bathurst (C.T.).

NEMATODE (Anguillulina dipsaci) was recorded from the Metropolitan Area and Bathurst (C.T.).

LEAF SCORCH (Stagonospora curtisii) was recorded from Bathurst (C.T.), Robertson (S.C.) and the Metropolitan Area.

DAHLIA.

MOSAIC (Dahlia stunt virus) was widespread and caused stunting and malformation of leaves and poor flowering during Spring and late Autumn.

SPOTTED WILT (Tomato Spotted Wilt virus) was prevalent as usual.

LEAF SPOT (Entyloma dahliae) was recorded from Katoomba (C.T.) and the Metropolitan Area in Summer and Autumn.

POWDERY MILDEW (Oidium sp.) developed to a slight extent late in the season.

SCLEROTINIA ROT (Sclerotinia sclerotiorum) was reported to have caused considerable damage to crops in the St. Ives district (M.A.) during the Autumn. Losses during storage promise to be heavy.

ROOT KNOT (Heterodera marioni) was recorded from the Metropolitan Area.

DELPHINIUM.

BACTERIAL SPOT (Pseudomonas delphinii) was reported from Oberon (C.T.) causing severe damage during damp Spring weather.

POWDERY MILDEW (Erysiphe polygoni) was recorded from the Metropolitan Area during Spring.

ELM.

LEAF SPOT (Septogloeum ulmi) caused premature defoliation at Mt. Tomah (C.T.).

EUONYMUS JAPONICUS.

POWDERY MILDEW (Oidium euonymi-japonici) was recorded from Corowa (R.).

FLOWERING APPLE (Malus floribunda).

BLACK SPOT (Venturia inaequalis) was recorded, causing considerable leaf injury at Leura (C.T.) and Guyra (N.T.).

FLOWERING PEACH.

GREENING (? Tomato Big Bud virus) was recorded from Hexham (C.C.), Griffith (M.I.A.) and the Metropolitan Area.

FORGET-ME-NOT.

GREENING (Tomato Big Bud virus) was recorded for the first time on this host in N.S.W. from a Metropolitan garden.

FREESIA.

DRY ROT (Sclerotinia gladioli) caused heavy damage to stock in a Metropolitan nursery.

FRENCH MARIGOLD.

SUSPECTED MOLYBDENUM DEFICIENCY. A grower at Berkeley Vale, whose tomato crop had been affected with molybdenum deficiency, reported also a response in French marigold to an application of molybdenum. The plants, before treatment, were pale green, but developed a dark green colour a few days after treatment. The first flowers to open showed some petal greening which may have been a result of the treatment.

GARDENIA.

ROOT KNOT (Heterodera marioni) was prevalent in the Metropolitan Area.

CHLOROSIS (Soil insufficiently acid) was recorded from several Metropolitan localities.

GREENING. Greening of flowers, partial or complete, was recorded from two Metropolitan nurseries. It is suspected that the condition may be related to excessive application of D.D.T. sprays.

GERBERA.

GREENING (Tomato Big Bud virus) was recorded from numerous Metropolitan localities. It appeared to be much more prevalent than usual.

LEAF SPOTS (*Septoria* sp. and *Cercospora* sp.) were common during Summer and Autumn in the Metropolitan Area, Central and North Coast districts, and were recorded also from Coonabarabran (N.W.P.).

CROWN ROT (*Phytophthora* sp.) was recorded from the Metropolitan Area.

WILT (*Verticillium dahliae*) was recorded from Kurrajong (C.T.).

GLADIOLUS.

CORM ROT, LEAF and FLOWER SPOTTING and NECK ROT (*Botrytis gladiolorum*). Summer and autumn crops, especially in the Central Tablelands, suffered severely. Losses of corms were reported from many Central Tableland, Metropolitan and South and Central Coast localities. Leaf spotting was also rather prevalent in early Spring crops in the Central Coast and Metropolitan areas. The variety, Rapture appears to be particularly susceptible.

DRY ROT (*Sclerotinia gladioli*) was fairly prevalent in all sections.

HARD ROT (*Septoria gladioli*) was reported from a Metropolitan nursery.

SCAB (*Pseudomonas marginata*) was fairly general.

MOSAIC (Yellow Bean Mosaic) was widespread.

SEVERE MOSAIC (Virus) was seen in a commercial crop at Kurrajong (C.T.), affecting about 20% of the plants of several varieties.

PENICILLIUM ROT (*Penicillium gladioli*) was unusually prevalent. Fairly substantial losses were experienced by growers at St. Ives (M.A.), Kurrajong (C.T.) and in the Metropolitan Area. Damp, rather warm conditions during storage, or incomplete drying before storage may be the cause. The rot did not appear to be associated with injury.

RING SPOT (? Tomato Spotted Wilt virus). A number of cases were reported of this disease. In particular, one grower at Schofields (M.A.) found his entire stock of var. Barcarole to be affected. Corms, after several months' storage, develop brown concentric rings centering on the veins along the leaf scars. The growth and flowering of the affected varieties is not impaired. This disorder has been described from Canada, and there the variety Barcarole is included in the susceptible group. No cause was assigned to it by the Canadian investigator.

LEAF SPOT (*Stemphylium* sp.) was recorded for the first time in N.S.W. on this host from a Metropolitan locality. The affected crop was an Autumn one planted in close proximity to an old Spring crop. Individual plants were so severely attacked as to prevent flowering and corm formation.

FLOWER DEFORMATION. In a crop at Wyong (C.C.) several varieties developed abnormally thickened terete petals. Corms flowered normally in the following season, and the cause was not determined. In several Metropolitan crops, up to 2% of plants of the variety Picardy developed horned petals. The cause of this was not determined.

GLOXINIA.

CORM ROT (Pythium splendens) was recorded for the first time on this host in N.S.W. from the Sydney Botanic Gardens.

ROOT ROT (Rhizoctonia solani) was recorded from the Sydney Botanic Gardens.

GOLDEN ROD (Solidago canadensis).

POWDERY MILDEW (Oidium sp.) was recorded for the first time in N.S.W. on this host from a Metropolitan locality.

HIBISCUS.

ROOT KNOT (Heterodera marioni) was recorded from a Metropolitan locality.

HIPPEASTRUM.

RED STRIPE (Stagonospora curtisii) was recorded from the Metropolitan Area during Autumn and Winter.

MOSAIC (Virus) was recorded from the Metropolitan Area and Gosford (C.C.).

HOLLYHOCK.

RUST (Puccinia malvacearum) was prevalent as usual.

HOWEA BELMOREANA (Kentia Palm).

LEAF BLIGHT (Cylindrocladium macrosporium), recorded for the first time in N.S.W. on this host, caused heavy damage to stock in a Metropolitan nursery. The plants had been imported from Queensland.

HYACINTH.

WHITE SLIME (Cause not known) was recorded from Narara (C.C.).

HYDRANGEA.

POWDERY MILDEW (Oidium sp.) was fairly general from late Summer in the Metropolitan Area, but caused little damage.

CHLOROSIS (Soil insufficiently acid) was reported from Crookwell (C.T.).

ICELAND POPPY.

DOWNY MILDEW (Peronospora arborescens) was recorded from several Metropolitan flower crops in early Spring, 1949, and late Autumn, 1950.

SPOTTED WILT (Tomato Spotted Wilt virus) was recorded from several Metropolitan localities. Losses appear to have been light.

IRIS.

LEAF SPOT (Heterosporium gracile) was general during Spring and late Summer and Autumn, causing considerable damage to German iris in the Metropolitan Area. It was also reported during Spring from Batlow (S.T.) and Orange (C.T.). At Orange, control was effected by destruction of affected leaves and spraying with Bordeaux mixture 1-1-10.

MOSAIC (Iris Mosaic virus) was recorded on Dutch Iris in the Metropolitan Area and on I. Tingitana from Robertson (S.C.).

JASMINE.

BRANCH BLIGHT (Botrytis cinerea) was recorded from Castle Hill (M.A.) during damp, cool Spring weather.

LABURNUM (L. vulgare).

LEAF SPOT (Ceratophorum setosum) was recorded from Wentworth Falls and Mt. Wilson (C.T.).

LAGERSTROEMIA (Crepe Myrtle).

POWDERY MILDEW (Uncinula Australiana) was recorded from a number of Metropolitan localities during the late Spring.

LEPTOSYNE STILLMANII.

RUST (Puccinia distincta) was recorded for the first time on this host from a Metropolitan flower farm. Other species of Leptosyn were not attacked.

LILAC.

LEAF SPOT (Phyllosticta sp.) was very prevalent during late Summer and Autumn in the Central Tablelands and Metropolitan Area and caused considerable foliage injury.

BLIGHT (Pseudomonas syringae) was recorded at Mt. Tomah (C.T.), causing heavy damage during Spring, 1949.

STOCK-SCION INCOMPATIBILITY. Interveinal chlorosis, believed to be due to this cause, was recorded from several Metropolitan and Tableland localities, generally towards the end of the Summer. In one case from Wentworth Falls (C.T.), believed also to be due to this cause, the leaves were enlarged, crinkled, thick and brittle in texture and contained excessive amounts of starch.

LILY.

MOSAIC (Virus) was recorded from Central Coast, Central Tableland and Metropolitan localities.

ROOT ROT (? Rhizoctonia solani) was responsible for dying off of flowering shoots of L. regale hybrids at Castle Hill (M.A.). Losses of up to 70% were experienced. Considerable differences were noted in the susceptibility of the different hybrids.

GREENING (Tomato Big Bud virus) was recorded for the first time on L. longiflorum from a Newcastle (C.C.) garden.

MAGNOLIA GRANDIFLORA.

ALGAL LEAF SPOT (Cephaleuros virescens) was recorded for the first time on this host in N.S.W. from Ourimbah (C.C.). Individual spots attained very large size and some of the more heavily affected leaves fell prematurely, but damage was negligible.

NICOTIANA ALATA (Ornamental Tobacco).

POWDERY MILDEW (Oidium sp.) was recorded for the first time in N.S.W. on this host from a Metropolitan garden. Infection was heavy.

OAK.

POWDERY MILDEW (Microsphaera quercina) developed in early Autumn on nursery stock at Murrajong Heights (C.T.) and in the Metropolitan Area.

OLEANDER.

BACTERIAL GALL (Pseudomonas savastanoi) was recorded from Dubbo (C.T.).

PELARGONIUM.

RUST (Puccinia pelargonii-zonalis) was prevalent as usual.

GREENING (Tomato Big Bud virus) was recorded for the first time on this host from Weethalle (S.W.S.), the Metropolitan Area and Griffith (M.I.A.).

PEONY.

GREY MOULD (Botrytis paeoniae) was recorded for the first time in N.S.W. from Katoomba (C.T.), causing blighting of shoots and flower buds.

LEAF SPOT (Septoria paeoniae) was recorded for the first time in N.S.W. from Mt. Wilson (C.T.).

MOSAIC (Virus) was recorded on tree peony (P. suffructicosa) from Mt. Wilson (C.T.).

PETUNIA.

GREENING (Tomato Big Bud virus) was recorded for the first time on this host from Griffith (M.I.A.).

PHLOX.

GREENING (Tomato Big Bud virus) was rather prevalent on P. drummondii in the Metropolitan Area during the Summer and was also recorded from localities in the Central Coast, Riverina, M.I.A. and Southern Tablelands. It was also recorded from the Metropolitan Area on perennial phlox (P. divaricata).

LEAF SPOT (Septoria divaricata) was recorded from localities in the Central Tablelands and Metropolitan Area.

PHOTINIA SERRULATA.

POWDERY MILDEW (Oidium sp.) was reported causing considerable disfigurement and malformation of Spring growth from Cooma, Boro and Goulburn (S.T.) and the Metropolitan Area.

PHYSOSTEGIA VIRGINIANA.

GREENING (Tomato Big Bud virus) was recorded for the first time on this host from a Metropolitan locality.

PINE (Pinus radiata).

SHOOT and LEAF BLIGHT (Diplodia pinea) was particularly prevalent throughout the year in the Hills District, Windsor (M.A.) and Gosford (C.C.) districts. There is considerable variation in susceptibility to this disease and it is now thought that it may be the chief cause of the failing vigour of some pines in all age groups which has been much accelerated during the past three years. It has been observed to cause a shoot blight of nursery stock in the Metropolitan Area.

ROOT and COLLAR ROT (Phytophthora cinnamomi) was found to be the cause of death of 1-2 year old seedlings in a Metropolitan nursery. A loss of about 2% was experienced.

PLANE.

SHOOT BLIGHT (Gnomonia veneta) was particularly widespread throughout the year, reported from many localities in the Southern and Central Tablelands and Metropolitan Area.

POINSETTIA.

ROOT ROT (Armillaria mellea) was recorded from a Metropolitan locality.

PYRACANTHA.

BLACK SPOT (Venturia pyracanthae). Heavy infection of leaves and fruit of P. coccinia lalandei were reported from Guyra (N.T.) and localities in the Central Tablelands.

RANUNCULUS.

MOSAIC (Virus) was recorded from several Metropolitan flower crops in Winter and early Spring, 1949, causing considerable reduction in vigour.

RHODODENDRON.

LEAF SPOT (Cercospora sp.) was recorded for the first time in N.S.W. from Mt. Wilson and Mt. Tomah (C.T.).

SHOOT BLIGHT (Phytophthora cactorum) was recorded for the first time in N.S.W. on this host from Mt. Tomah (C.T.).

ROOT ROT (Phytophthora cinnamomi) was recorded from a Metropolitan nursery.

CHLOROSIS (Insufficiently acid soil) was recorded from Gundagai (S.W.S.) and the Metropolitan Area.

ROSE.

BLACK SPOT (Diplocarpon rosae) developed in early Spring and caused serious defoliation along the coast and on the Tablelands. Subsequently, further Summer and Autumn development, particularly on the South and Central Coast and in the Metropolitan Area, caused very serious injury. Records of heavy infection also came from South, Central and Northern Tablelands.

POWDERY MILDEW (Sphaerotheca pannosa) was fairly general, but only moderately severe on susceptible varieties in Coastal and Tableland areas and in the M.I.A.

DIE-BACK (Coniothyrium sp.) was recorded, particularly from localities in the Northern and Southern Tablelands where it is probably the result of some Winter injury due to unusually low temperatures.

LEAF SPOT (Sphaceloma rosarum) was recorded from a number of Metropolitan localities.

MOSAIC (Virus) was noted in a number of flower farms in the Metropolitan Area on Spring growth.

ROSE WILT (Rose Wilt virus). This disease, which has been of little consequence during the past ten years, was observed in several Metropolitan nurseries and home gardnes during Spring, 1949. Very few infected plants were seen.

SALVIA SPLENDENS.

ROOT ROT (Phytophthora parasitica) was recorded for the first time on this host from the Metropolitan Area.

SESBANIA TRIPETII (Brazilian Glory Pea).

ROOT KNOT (Heterodera marioni) was recorded for the first time on this host in N.S.W. from the Metropolitan Area.

SHASTA DAISY.

GREENING (Tomato Big Bud virus) was prevalent in the Metropolitan Area.

STATICE.

SHOOT BLIGHT (Tomato Spotted Wilt virus) affected about 5% of a crop of S. sinuata at Wyong (C.C.).

LEAF SPOT (Cercospora sp.) caused moderate damage to Spring crops at Wyong (C.C.) and in the Metropolitan Area.

STOCK.

BLACK SPOT (Xanthomonas incanae) was again the principal cause of loss in this crop and a number of plantings in the Metropolitan Area were a complete failure.

BACTERIAL ROT (Pseudomonas matthioli) was recorded from Dural (M.A.) in early Winter, 1950. The symptoms were identical with those caused by X. incanae.

MOSAIC (Stock Mosaic virus) was recorded from several crops in the Metropolitan Area and South Coast.

SCLEROTINIA ROT (Sclerotinia sclerotiorum) caused a slight amount of loss in a Dural (M.A.) crop.

SWEET PEA.

SPOTTED WILT (Tomato Spotted Wilt virus) was recorded from several Metropolitan localities, causing minor losses.

ROOT ROT (Pythium sp.) caused losses chiefly in home gardens in the Metropolitan Area during wet weather in Winter and early Spring, 1949.

POWDERY MILDEW (Erysiphe polygoni) was rather prevalent towards the end of the season in the Metropolitan Area and was also recorded from Narromine (C.W.S.).

FLOWER BLIGHT (Botrytis cinerea) was observed during wet Spring weather in a Metropolitan crop.

FAILURE TO FLOWER. Plants grown from English seed by a Berowra (M.A.) flower farmer showed considerable yellowing of the lower leaves and failure to flower, while crops from Australian seed sown at the same time performed excellently. Late in the season, towards the end of Spring, the affected plants flowered, but not profusely. It is suspected that the condition was due to the English strain having been selected specially for flowering in long Summer days whereas the Australian strains are selected for short day (Winter flowering).

VERBASCUM.

ROOT and CROWN ROT (Phytophthora sp.) was recorded for the first time in N.S.W. on ornamental verbascums in a Metropolitan garden.

VIOLET.

SCAB (Sphaceloma violae). This disease was well established during the Winter of 1949 following favourable weather in the preceding Autumn. Further wet weather in early Spring, 1949, and in Summer and Autumn ensured a continuous infection of all new growth. As a result, unsprayed violets in the Coastal and Tableland areas are so heavily infected that flower production has been very greatly impaired.

ROOT and STOLON ROT (Rhizoctonia solani) was responsible for very heavy mortality in a commercial crop at Castle Hill (M.A.). Most damage occurred in January and February.

ZINNIA.

SPOTTED WILT (Tomato Spotted Wilt virus) was recorded from a number of Metropolitan localities.

POWDERY MILDEW (Oidium sp.) appeared rather late on Autumn crops, its onset apparently being delayed by the continuously wet weather.

LEAF SPOT (Alternaria zinniae) was recorded from several Metropolitan localities.

GREENING (Tomato Big Bud virus) was recorded for the first time on this host from Arcadia (M.A.).

VEGETABLES.

ASPARAGUS.

No records.

BEAN.

The seed certification scheme was continued for the seventh successive season. A total of 493 acres (110 separate crops) was inspected and 159 acres (41 crops) passed for certification. An additional three small crops were "approved" as up to certification standard and suitable for use as mother seed. After allowing for harvesting losses due to wet weather and other causes, it is expected that about 1700 bushels will be certified. About 67% of this will be Brown Beauty, 20% Tweed Wonder and the remaining 13% will consist of Wellington Wonder, Goward Special, Hawkesbury Wonder and Windsor Longpod.

HALO BLIGHT (Pseudomonas phaseolicola). Seed certification continues to give good control of this disease. In certification inspections of seed crops on the South Coast, eleven crops out of a total of 110 crops were rejected because of the presence of this disease (an additional 55 crops were rejected for other reasons). During the Spring months of 1949, weather extremely favourable for the spread of halo blight occurred in the Gosford (C.C.) district and, in some crops of the Tweed Wonder variety, extensive patches of halo blight developed even where certified seed was used. The initial infections

probably developed from trace seed carryover in most cases, though in some cases the infection may have originated from the soil or from nearby affected crops. The disease spread, however, was relatively late in the growth of the crops and where the disease occurred losses were not heavy.

ANTHRACNOSE (Colletotrichum lindemuthianum). Above-average wet conditions for most of the year again favoured the development and spread of anthracnose. In the seed certification scheme, this disease was responsible for more crop rejections than any other single reason, 23 out of a total of the 66 seed crops rejected being rejected because of the presence of anthracnose. Some complete crop losses were sustained in the Hawkesbury Wonder variety in the Gosford (C.C.) district during the Autumn months of 1950, whilst very severe losses were also reported in commercial crops of Landreth and Burpee's Stringless Greenpod. Three wet years in succession have shown the value of anthracnose-resistant varieties such as Tweed Wonder and Wellington Wonder in comparison with susceptible varieties, such as Canadian Wonder, Landreth and Hawkesbury Wonder. Field observations and glasshouse inoculation tests have shown that Tweed Wonder and Wellington Wonder have a high degree of resistance to the strain or strains which are at present prevalent in this State, whilst most commercial lines of Brown Beauty appear to be a mixture of resistant and susceptible types. All other varieties at present grown here in commercial quantities for the production of green pods are susceptible. Plantings of the anthracnose-resistant types are likely to increase in the next few years with a corresponding decrease in sowings of the susceptible varieties.

ANGULAR LEAF SPOT (Isariopsis griseola). Though not quite as prevalent as in the preceding year, this disease again occurred in all late-planted crops of dwarf French beans grown for seed on the South Coast. It was also present in most Summer and Autumn-grown green bean crops on the Central Coast.

RUST (Uromyces phaseoli typica). During the past year, rust has been recorded in New South Wales on dwarf French beans from many localities additional to those in which it was first recorded in the 1948-49 season. The disease has occurred in commercial plantings of all the main dwarf bean varieties from Murwillumbah on the far North Coast to Kiah, near the Victorian border. The rapid spread of this new strain of bean rust indicates a wide dispersal by means of wind-blown spores. Experience up to the present with the disease suggests that it is likely to become a serious factor in reducing yields on the Central Coast and North Coast but that it will be of much less importance elsewhere in the State. As usual, there were also many records of rust in home garden plantings of the Epicure variety.

AMERICAN COMMON BLIGHT (Xanthomonas phaseoli). Apart from navy beans (see separate section) there were only four definite records of this disease during the past year.

BACTERIAL BROWN SPOT (Pseudomonas syringae). There were again many records of this disease, particularly in South Coast seed crops, where the incidence was comparable with that in the 1948-49 season.

SCLEROTINIA ROT (Sclerotinia sclerotiorum). There were many records of this disease - from the Central Coast, North Coast, Metropolitan Area and also from Forbes (C.W.S.).

The apothecial stage was observed in and near bean crops on the Gosford (C.C.) district during April and May, 1950. Though some marketing losses were reported in North Coast and Central Coast beans sent to the Sydney markets, infection was much less widespread than in the Autumn months of 1947.

MOSAIC (Virus). This disease was present in almost all crops but the incidence of the disease throughout the year was very low and no serious losses were recorded. Wet weather conditions throughout the year possibly kept the population of aphid vectors at a very low level.

MOTTLE LEAF (Non-parasitic). This disease again occurred in all crops of Tweed Wonder grown from the "South Coast" strain. The "Tenterfield" strain of the variety appears to be free of the condition and efforts are being made to replace the former with the latter strain of the variety. Though severely stunting a small percentage of the plants and affecting others in the early stages, plants tend to outgrow the condition as they approach maturity and it is thought that final yield reductions are not as high as inspections of crops in the pre-flowering period would suggest.

FUSARIUM ROOT ROTS and WILTS (Fusarium spp.). Several records but no reports of serious losses.

BACTERIAL WILT (? Corynebacterium flaccumfaciens). A gram-positive bacterial organism was isolated from wilted bean plants in three crops on the South Coast. There was also one record from navy beans on the Northern Tablelands (see separate section). The pathogenicity of the organism, which is a xylem invader, has been proved but its exact identity has not been definitely established, although all studies so far indicate that it is Corynebacterium flaccumfaciens. This is the first record of this disease in New South Wales, although it would appear that it has been present here for some years. It is not thought that it will prove to be of any great economic importance.

RHIZOCTONIA STEM CANKER and ROOT ROT (Rhizoctonia solani). Several records from the Metropolitan Area and from Gosford (C.C.).

PYTHIUM WILT (Pythium aphanidermatum). One record from Riverstone (M.A.).

RUSSET (Cause undertermined). Several specimens of pods affected with this condition were again submitted from consignments received at the Sydney Municipal Markets from the North Coast. The condition has not been observed in the field.

ROOT KNOT (Heterodera marioni). Several records.

PHYLLOSTICTA LEAF SPOT (Phyllosticta sp.). There were several records in South Coast seed crops of a leaf spot condition with which a species of Phyllosticta was associated. The disease appears to be only of minor importance.

ASCOCHYTA SPOT (Ascochyta sp.). Specimens of pods of the variety Blue Lake were submitted from Batlow (S.T.) showing brown to black surface discolourations. The morphological characters of the fungus, associated with the pod markings, appeared to be in reasonably good agreement with those described for Ascochyta boltshauseri.

PRE-EMERGENCE DAMPING-OFF. Recorded from Pennant Hills (M.A.).

DDT INJURY. Recorded on beans in the Metropolitan Area.

FAILURE TO SET PODS. Several enquiries were received during the year concerning the failure of Scarlet Runner beans to set pods in home gardens in the Metropolitan Area. High temperatures were thought to be responsible.

BEAN, BROAD.

CHOCOLATE SPOT (Botrytis sp.). Two records from the Metropolitan Area.

RUST (Uromyces fabae). Recorded from the Metropolitan Area.

ROOT ROTS (Rhizoctonia solani and Fusarium sp.). Two cases of root rot, with which Rhizoctonia solani was associated, and one in which a species of Fusarium appeared to be responsible, were recorded from the Metropolitan Area.

WART-LIKE OUTGROWTHS ON PODS (Cause undetermined). A condition in which wart-like outgrowths occurred on pods was reported from Richmond (M.A.).

BEAN, NAVY or FIELD.

AMERICAN COMMON BLIGHT (Xanthomonas phaseoli). This disease was present in practically every crop grown on the Northern Tablelands, although few cases of really severe infection were reported. The programme of building up supplies of disease-free seed of the Small White variety has not yet proved entirely successful, although the incidence of the disease has been maintained at a low level over the last two years. No nucleus seed was grown this year on the South Coast, but some was produced at the Leeton Experiment Farm. Field inspections of these Leeton crops showed that they were apparently free from this and other serious seed-borne diseases.

BACTERIAL WILT (? Corynebacterium flaccumfaciens). Recorded in one crop of Small White navy on the Northern Tablelands. Two affected plants only were noted in this crop and, although the disease may be more widespread than this first single record in navy beans indicates, it is thought that the disease is of no great economic importance. (See also under Beans).

MOSAIC (Virus) was present in all crops but the incidence of the disease was very low and it was not responsible for any measurable economic losses.

RUST (Uromyces phaseoli typica). One record on the Michelite variety from Leeton (M.I.A.). Beans of the Small White variety growing nearby were not affected.

BEAN, LIMA.

BACTERIAL SPOT (Pseudomonas syringae). One record from Tenterfield (N.T.).

BEET and SILVER BEET.

CERCOSPORA LEAF SPOT (*Cercospora beticola*). As usual, there were many records of this disease, on both silver beet and beetroot.

MOSAIC (Virus). Several records from the Metropolitan Area, including one of serious stunting of affected plants in a commercial planting of silver beet.

SCLEROTIUM ROT (*Sclerotium rolfsii*). One record of severe infection on almost mature beetroots in the Metropolitan Area.

SEPTORIA LEAF SPOT (*Leptoria betae*). This disease was recorded for the first time in New South Wales in August, 1949, from silver beet grown at Mona Vale (M.A.).

CAPE GOOSEBERRY.

No records.

CARROT.

CARROT VIRUS. Several records from the Central Coast and Metropolitan Area.

CERCOSPORA LEAF SPOT (*Cercospora carotae*). Two records - from the Metropolitan Area and South Coast.

LEAF BLIGHT (*Alternaria dauci*). One record from the South Coast.

SCLEROTIUM ROT (*Sclerotium rolfsii*). One record from the Metropolitan Area.

ROOT KNOT (*Heterodera marioni*). Several records.

? MOLYBDENUM DEFICIENCY. Carrots showing leaf chlorosis and high nitrate content in the leaf tissue were observed at Tumbi Umbi (C.C.) growing near tomatoes where a response to an application of sodium molybdate had been secured. Most of the plants in the crop were healthy, a few patches only of chlorotic plants being present.

BACTERIAL BLIGHT (*Xanthomonas carotae*) was recorded from a seed crop at Coonabarabran. (N.W.P.).

CELERY.

LATE BLIGHT (*Septoria apii-graveolentis*). Several records, including some severe losses in home garden plantings in the Metropolitan Area. The disease was also observed in most of the celery crops at Leeton (R.I.A.). Here, applications of 1-1-10 Bordeaux mixture, following the first evidence of the disease early in April, appeared to have held the disease in check. Celery, which was subsequently canned after the Bordeaux spray application, showed a distinct bluish-green blotching of the canned product.

LEAF CHLOROSIS (Cause undetermined). A condition in which there was severe leaf chlorosis and stunting of affected plants, was recorded at Tumbi Umbi (C.C.). Molybdenum deficiency was suspected, but an application of sodium molybdate failed to result in any definite recovery of affected plants.

CRUCIFERS.

RING SPOT (Mycosphaerella brassicicola). Wet seasonal conditions again favoured the development and spread of this disease in cabbage crops in the Moss Vale-Robertson district (S.C.). Severe infection of the outer leaves is reported to have reduced yields and to have resulted in reduced market value of heads because of the necessity to remove outer affected leaves before marketing. The disease was also recorded on Brussels sprouts grown at Yetholme (C.T.).

BLACK ROT (Xanthomonas campestris). Many reports of this disease were received on cauliflower, broccoli and cabbage. The disease was reported to have caused some appreciable losses in commercial cabbage crops in the Maitland district (C.C.) during February and March, 1950.

WHIPTAIL (Molybdenum deficiency). Several records during the year but the widespread adoption of control measures by the application of molybdenum compounds in whiptail-liable areas has reduced the incidence of this disease to a low leve.

DOWNY MILDEW (Peronospora parasitica). Several records on cabbage, cauliflower and broccoli.

CLUB ROOT (Plasmodiophora brassicae). Two records from the Metropolitan Area - on cauliflower and swede turnip.

SCLEROTINIA ROT (Sclerotinia sclerotiorum). Recorded on cabbage and cauliflower in the Metropolitan Area.

DAMPING-OFF, WIRE STEM and ROOT ROT (Rhizoctonia solani). Several records, including three on radish and one on Brussels sprouts, as well as others on cabbage and cauliflower.

BORON DEFICIENCY. Several cases of suspected boron deficiency were recorded on cauliflowers in the Metropolitan Area and swede turnips on the Northern Tablelands.

ALTERNARIA LEAF SPOT (Alternaria brassicae). This disease was recorded on cauliflowers in the Metropolitan Area and at Leeton (R.I.A.).

CUCURBITS.

POWDERY MILDEW (Erysiphe cichoracearum). This disease was observed in bush marrows at North Ryde (M.A.) in the middle of November and by December had caused considerable defoliation. Fortnightly applications of sulphur dust to some plants in this locality, commencing in early October, completely controlled the disease. There were several other records of the disease throughout the State.

DOWNY MILDEW (Peronoplasmopara cubensis) was recorded on cucumber from Bodalla (S.C.) and on cucumber and rockmelon in the Metropolitan Area.

YELLOWS (Molybdenum deficiency). Two records on rockmelons at Tumbi Umbi (C.C.). Responses were reported following the application of crude (43%) sodium molybdate to affected plants.

FOOT ROT and WILT (Fusarium sp. ?). About 5% of a crop of bush marrows at North Ryde (M.A.) was affected with an extensive foot rotting, accompanied by a wilting of the leaves. A species of Fusarium was isolated from affected plants.

DAMPING-OFF (Cause undetermined). Two records, one on rockmelon from Ebenezer (M.A.) and one on pumpkin from Pitt Town (M.A.).

BLACK ROT or GUMMY STEM BLIGHT ? (Mycosphaerella citrullina). A fungus closely resembling this pathogen was present on a dead pumpkin stem submitted from Tottenham (C.W.P.).

FAILURE TO SET FRUITS (Cause undetermined. This condition was reported in December, 1949, on pumpkins and marrows from Wyee (C.C.).

LETTUCE.

SPOTTED WILT (Tomato Spotted Wilt virus). This disease was very much less prevalent than usual and only one definite case from Glenbrook (C.T.) of spotted wilt on lettuce was recorded.

SCLEROTINIA ROT (Sclerotinia sclerotiorum). Several records from the Metropolitan Area.

DOWNY MILDEW (Bremia lactucae). Several records but no reports of any serious losses.

BACTERIAL SPOT (? Xanthomonas sp.). Two records of a bacterial leaf spot disease on lettuce were made in January, 1950. Both were from home gardens in the Metropolitan Area.

BRONZING OF OUTER LEAVES (Cause undetermined). Lettuce plants showing an unusual bronzing of the outer leaves were submitted in October, 1949, from the trial grounds of a seed firm at Dundas (M.A.).

ONION.

DOWNY MILDEW (Peronospora destructor). Several records from the Central Coast and Metropolitan Area.

PARSLEY.

ROOT ROT (Cause undetermined). One record from the Metropolitan Area.

PARSNIP.

LEAF SPOT (Cylindrosporium sp.). Two records from the Metropolitan Area.

PEA.

POD and LEAF SPOT DISEASES (Mycosphaerella pinodes, Ascochyta pisi). Mycosphaerella blight caused severe reduction in two crops of the Gem and Greenfeast varieties at North Ryde (M.A.) in September. Extensive blighting of the stems and leaves had taken place and the pods were unfit for market. A severe attack on young plants (2-4 inches high) occurred at Horsley (M.A.) following wet weather in July. A light attack by A. pisi was also associated with Mycosphaerella in this crop. There were several other records of these diseases during the past year in Coastal areas. Ascochyta foot rot (A. pinodella) was not recorded this year.

BACTERIAL BLIGHT (Pseudomonas pisi). This disease affected crops throughout the Cowra district (C.W.S.) and yields were seriously reduced in some instances. A crop of New Zealand Greenfeast grown at Oberon (C.T.) failed due to seed-borne bacterial blight infection, combined with excessive rain and storms. Growth of the plants had been completely arrested when the plants were 4-5 inches high. The disease was also present at Orange (C.T.).

POWDERY MILDEW (Erysiphe polygoni). This disease caused severe damage to crops at Leeton (M.I.A.) in March. Attempts to dust the crop with sulphur by machinery were unsuccessful as the vines were too brittle. The disease was also recorded from Warriewood (M.A.).

DOWNY MILDEW (Peronospora viciae). Specimens of pods received from Bowraville (N.C.) showed damage typical of that described for downy mildew attack on pea pods and abundant oospore production had taken place in the outer layers of the Specimens of affected foliage were also received from Bimlow and Gdenori (M.A.).

FUSARIUM WILT (Fusarium oxysporum f. pisi, Race 1). Specimens were received from Yanco (M.I.A.), Murwillumbah (N.C.) and Arncliffe (M.A.).

LEAF BLOTCH (Septoria pisi). One record from Rydal (C.T.).

EELWORM (Heterodera marioni). One record from the Metropolitan Area.

DAMPING-OFF (Cause undetermined) was prevalent in the Young district (C.W.S.) wherever undusted pea seed was planted.

NITROGEN DEFICIENCY. One specimen showing nitrogen deficiency, resulting from poor root nodulation and lack of nitrogenous fertiliser, was received from Camden (M.A.).

FROST INJURY. One specimen received from Mortdale (M.A.).

POTATOES.

IRISH BLIGHT (Phytophthora infestans). Epiphytotics of this disease were favoured by abnormal rains over the growing season. In Spring Coastal crops varying losses resulted from Irish blight attack. At Bellingen (N.C.) up to 50% losses occurred but the aggregate loss in the Grafton (N.C.) district was not great. Blight occurred in a number of crops in the Metropolitan Area over the same period.

Irish blight attack in the eastern section of the Northern Tablelands was the worst for many years. Up to 100% infection occurred. The varieties, Sebago and Sequoia, showed very good resistance in this area, Monak and Adina appeared to have some resistance and, to a lesser extent, Moona. Factor was most susceptible. In the Central Tablelands, a 10-15% loss was experienced at Mudgee. Following flood rains in Autumn, Irish blight killed plants and caused tuber rotting in the Orange district (C.T.), overall damage being then estimated at 10%. Later estimates in June showed that a 40-50% tuber loss occurred in the Factor variety. In a variety trial in the Orange district (C.T.), estimates of some varietal losses were:- Factor 45.8%, Nasota 20%, Moona 16%, Exton 13.8%, Monak 4.8%, Adina 2.0%. In one crop of eleven acres of the Early Manhattan variety, no digging was considered worthwhile because of blight damage to the tubers. A crop of Sebago and also experimental plantings of this variety at Spring Hill (C.T.) suffered some foliage damage. At Blayney (C.T.) 15% of all tubers were rejected at grading because of Irish blight rotting. Specimens of affected tubers were also received from Oberon (C.T.).

Considerable foliage damage occurred at Batlow (S.T.), although tuber damage did not appear to be great. Sebago showed least foliage damage, followed by Sequoia and Monak. Saranac was severely infected. Some foliage blighting was observed in an early planting of Sebago this season at Lindfield (M.A.).

BLACKLEG (Erwinia atroseptica). Frequent rains and flooding in Spring were responsible for outbreaks of this disease at Grafton (N.C.); 10-20% infection occurred in this area and at Bellingen (N.C.). The variety Sebago was most severely affected, losses being insignificant in Factor and Katahdin, indicating the relative susceptibility of Sebago to this disease. Much of the seed sown had been cut prior to planting and it appeared that the continued wet weather had prevented healing of the cut surface of the set, facilitating the entrance of the bacteria from the soil. Crops of Sebago of the same seed origin grown at Maitland (N.C.), where abnormal rains did not occur, were not affected with blackleg.

Central Tableland crops became affected following heavy rain. Sequoia and Sebago were most affected. Some blackleg was present in Factor but none was observed in other varieties. Blackleg was more in evidence in crops on low-lying areas. Up to 10% infection took place in some crops on heavy red soils and and about 4% on lighter soils.

At Crookwell (S.T.) Sequoia was the variety most severely affected, though only slightly more so than Sebago. The disease also occurred in small proportions in Katahdin, Factor and Saranac. Most of the Sequoia seed planted was extensively cut. Generally speaking, blackleg occurred in the lower parts of the field but some was present on well-drained areas. In one crop at Crookwell, where the sets in a number of rows were injured by the machinery at planting, up to 80% blackleg infection was observed.

RIZOCTONIA DISEASE (Rhizoctonia solani). Damage by this disease was fairly severe in crops on the Central Tablelands which were grown from undipped seed. No differences in amount of attack were detected in crops in this district grown from tubers dipped in acidulated corrosive sublimate (1:1000) or in Aretan (1:200). In the Crookwell district (S.T.) all crops from seed dipped in Aretan showed some Rhizoctonia damage.

Where this dip had been used, average infections of up to 2% Rhizoctonia were present on new ground and on land which had not been under potatoes for 8-10 years. In one crop growing on land which had been under potatoes the previous year, and the seed of which had been dipped in Aretan, very severe Rhizoctonia damage occurred. Crops from seed dipped in acidulated corrosive sublimate exhibited a much greater freedom from Rhizoctonia attack in the Crookwell district, even on land where as little as two years' rotation was practised, although the average rotation was 5-6 years.

On the Central Tablelands, the varieties Adina and Sebago were very susceptible to Rhizoctonia damage, but Monak and Sequoia were less damaged.

An unusual tuber pitting caused by Rhizoctonia, possibly in conjunction with soil water-logging, was present in specimens from Armidale (N.T.).

LEAF ROLL (Virus). Losses from this disease were highest in the Central Tableland crips where 21.4% of the acreage submitted for certification was rejected for excess (greater than 3%) leaf roll, compared with 18.7% rejections, on an acreage basis, during the 1948/49 season. In the Southern Tableland crops, however, only 5.7% of the total acreage submitted was rejected, compared with 26% for 1948/49. Rejections in Northern Tableland crops were negligible, being only 0.4% of the acreage, compared with 30% rejection for 1948/49. Factor was the variety most infected with leaf roll. In the Crookwell district (S.T.), crops of this variety grown from previously certified seed showed an average leaf roll infection of 1-2% but some crops grown from uncertified seed were infected to the order of 10% of the plants. In the same district, the varieties Sebago, Sequoia, Katahdin, Saranac and Aussie, grown from certified seed, averaged about 1% leaf roll infection.

EARLY BLIGHT (Alternaria solani). Severe infection developed in Central Tableland crops towards the end of March. Here the variety Monak showed high resistance and Adina fair resistance to the disease. Moona was moderately affected and Sebago severely. Light damage was evidenced at Mudgee (C.T.). The varieties, Adina and Monak, also were only lightly infected in experimental plantings at Glen Innes (N.T.) inspected in February, while adjoining plantings of other varieties had had the foliage killed by early blight. A crop of Early Manhattan growing at Guyra (N.T.) at the same time was moderately damaged, while an adjoining crop of Monak showed only very few leaf spots. Early blight was prevalent in crops at Robertson, Moss Vale (S.C.) but losses were not excessive.

COMMON SCAB (Actinomyces (Streptomyces) scabies). Although frequent and heavy rains occurred on the Tablelands during the growing season and moderate scab infection was present, only slight losses were experienced. Scab severity in experimental plantings at Spring Hill (C.T.) was lower than in the previous two seasons. Some severely affected tubers were received from the Metropolitan Area.

SCLEROTINIA ROT (Sclerotinia sclerotiorum) caused stem rotting in some crops in the Grafton district (N.C.) during the wet season. Overall damage was slight to moderate. Affected plants were also received from Dundas (M.A.).

BROWN FLECK (Non-parasitic). This disease was recorded from Carlingford (M.A.) and Padstow (M.A.). In both cases the crop was growing on fairly heavy soil, that at Carlingford being on a clay loam with an average pH of 5.3. The variety in this case was Katahdin. Field trials in the Northern Tablelands, involving fertiliser and minor element applcations at three soil acidity levels, again failed to yield any definite results due to the almost complete absence of fleck in all plots.

EELWORM (Heterodera marioni). Two records, one from Burrawang (S.C.) and one from Muswellbrook (C.C.).

MOSAIC (Virus). One plant of the variety Mainguy affected with mild mosaic was observed at Crookwell (S.T.).

SPOTTED WILT (Tomato Spotted Wilt virus). A trace infection, primary in all cases, was observed in crops at Crookwell (S.T.).

LEAK (Pythium debaryanum). During the year the first record of this disease was made in New South Wales - from Glenorie (M.A.). A number of tubers which had been injured in digging were affected.

DRY ROT (Fusarium sp.). One record from Orange (C.T.).

ENLARGED LENTICELS (excess soil moisture). Several records of this condition, which appeared to be more prevalant than usual.

SKIN CRACKING (undetermined). Tubers showing many short narrow cracks over the entire surface were received from Wild's Meadow (S.C.).

HOLLOW HEART (uneven growing conditions). Present to some extent in the variety, Sequoia, on the Central Tablelands.

SECOND GROWTH (Non-parasitic). This condition was present to some extent in the variety, Factor, in Central Tableland crops.

FASCIATION (undetermined). One plant present in a crop of the variety, Factor, at Bannister (S.T.).

PEPPER (Capsicum).

FRUIT SPOTTING (Alternaria sp. associated). Recorded from Parkes (C.W.S.) and the Metropolitan Area.

RHUBARB.

DOWNY MILDEW (Peronospora jaapiana). Several records from the Metropolitan Area.

RUST (Puccinia rubella). One record from Summer Hill (M.A.). This is the first record of this disease for some years, although it was first recorded in New South Wales in 1923.

SWEET POTATO.

No records.

TOMATO.

SPOTTED WILT (Tomato Spotted Wilt virus). Spotted wilt was again less prevalent than normally. Highest incidence occurred during November and December and was only slightly lowered during January. The disease occurred at a percentage level in all areas of the State, with the exception of the North Coast, where trace infection only was observed. At the Leeton Experiment Farm (M.I.A.), 14% of several varieties of tomato were infected. In the Metropolitan Area, Central Tablelands, Southern Tablelands infection was mostly below 10%, with occasional isolated crops showing up to 50%.

EARLY BLIGHT (Alternaria solani). Records were received from Coastal and Tableland areas but in no case was infection serious. As usual, the disease was restricted to the late Summer and Autumn months. Observed cases of losses suggested that fruit infection was mostly less than 1%. Though large-sized leaf lesions were of common occurrence, small numerous lesions were predominant.

FUSARIUM WILT (Fusarium oxysporum f. lycopersicum). Losses in glasshouse crops, which are all fully susceptible to the disease, varied from a trace to 10%. Crops are grown in these houses without rotation for several years and control of the disease occurs partly because soil temperature is low during a large portion of the growing season, but mostly because annual "sterilisation" is carried out with steam or chloropicrin. Reports were also received from several localities in the Metropolitan Area, the Murrumbidgee Irrigation Areas and the North Coast. Losses were not serious.

BACTERIAL CANKER (Corynebacterium michiganense). Canker was reported from several properties in the Metropolitan Area, from Coff's Harbour (N.C.), Orange and Cowra (C.T.), Coonabarabran (N.W.P.) and other inland areas, though there was no report from the M.I.A. Incidence at Cowra was considerably lower than last season. The only serious losses observed were on an individual property at Prospect (M.A.) and on several properties at Glen Innes (N.T.). Trace infection which occurred at Coonabarabran was almost certainly due to soil carryover and/or volunteer plants as all seed had been treated with 0.6% acetic acid and a 30-minutes' soak in water at 50°C.

BACTERIAL SPOT (Xanthomonas vesicatoria). Reports of plant destruction and fruit spoilage was received from all parts of the State. In the Coff's Harbour-Boambee area (N.C.) several crops maturing October-November, 1949, were abandoned and in April-June, 1950, affected seedlings and transplants were received from numerous growers, all of whom used virgin land, and most of whome had employed the hot water soak as seed treatment. At Coonabarabran (N.W.P.), leaf and stem lesions were present on all of several varieties being grown for seed purposes. In this instance, as at Cowra (C.T.) where the vegetative portions of all plants were also affected, there was a trace only of fruit scabbing. Bacterial spot, including badly attacked fruit, appeared for the first time in epiphytotic proportions at Newcastle (C.C.).

LEAF MOULD (Cladosporium fulvum). In the Metropolitan Area, a few cases of leaf mould were observed in outdoor crops, causing little damage, but, as usual, most of such crops were free from infection. In glasshouses, the September-October, 1949, crops were defoliated at the base and affected in decreasing degree towards the growing point. The 1950 crops were showing mould as early as April. Infection was less advanced in the houses of growers employing routine sprays of salicylanilide.

ROOT KNOT (Heterodera marioni). There was some indication that chloropicrin gave less effective control of root knot in sandy soils in glasshouses than did steaming; however, the basis of comparison was between houses and conditions, therefore, were not standardised. The effect of infection could not be observed on the growing plant. Reports of attack in outdoor crops were few and unimportant.

SEPTORIA LEAF SPOT (Septoria lycopersici). Reports of Septoria leaf spot were received from the Central Coast, North Coast, North Western Plains and the Riverina. No serious losses were incurred.

BLOSSOM DROP (Non-parasitic). No record.

MAGNESIUM DEFICIENCY. The only observations of magnesium deficiency were made on sandy soils in the Warriewood-Mona Vale district (M.A.). The degree of deficiency was slight.

VERTICILLIUM WILT (Verticillium dahliae). A few plants were lost because of this disease in glasshouses in the Warriewood-Mona Vale district (M.A.). Verticillium was less prevalent than Fusarium, even during the Winter months.

FRUIT ROTS (Various fungi). No records, except slight losses in the field due to Alternaria solani.

RHIZOCTONIA ROOT ROT (Rhizoctonia solani). A few specimens only received from seed-beds in the Metropolitan Area.

BLOSSOM END ROT (Non-parasitic) was observed throughout the State but was of minor importance.

MOSAIC (Virus) occurred in almost all glasshouses but it interfered little with the crops. A more virulent strain was observed outdoor at Wetherill Park (M.A.) and caused a stunting of the plants and 25-50% reduction in yield.

BIG BUD (Virus). An estimated 5% incidence occurred at Coonabarabran (N.W.P.) and on the M.I.A. Few plants were affected at Glen Innes (N.T.), while at Cowra (C.T.) 10 to 20% infestation was common and, in one instance, 90% of the plants in a 3-acre plot were affected. Though big bud on the Central Coast was never greater than 1 or 2%, this figure represents an incidence considerably above the normal.

SHATTER (Virus). Two reports were received from the M.I.A.

FERNLEAF (Cucumber mosaic). One specimen was received from the North Coast and a few cases occurred in the Metropolitan Area.

LATE BLIGHT (Phytophthora infestans). No records.

COLLAR ROT (Phytophthora cryptogea). One record from Forster (N.C.).

BACTERIAL SPECK (Bacterium tomato). No records.

PUFFY FRUIT (Non-parasitic). No records.

BACTERIAL WILT (Bacterium solonacearum). Two records from the North Coast and one from the Metropolitan Area.

MOLYBDENUM DEFICIENCY. Two records from the Metropolitan Area and two from the Central Coast.

MISCELLANEOUS PLANTS.

ACACIA SPP. (Wattles).

RUST (Uromycladium tepperianum) was recorded on various species, Metropolitan Area, Central Coast and Tablelands.

LEAF SPOT (Phyllachora parvicapsa) was recorded on A. glaucescens, Colo River (C.T.).

BASSIA BIRCHII. (Galvanised Burr).

ROSETTE (? Tomato Big Bud virus) was recorded for the first time on this host from Coonamble (C.W.P.).

BURR, BATHURST. (Xanthium spinosum).

ANTHRACNOSE (Colletotrichum xanthii) developed extensively during the season, particularly in North Western N.S.W. where infections ranging from 80-100% were observed in fifteen different districts. Heavy infection also occurred on the Central Tablelands and in the Metropolitan Area. The disease was reported from 35 new localities, distributed as follows:- N.W.S. 9, N.W.P. 8, C.W.S. 5, C.W.P. 3, C.C. 3, C.T. 3, M.A. 3 and N.T. 1.

This distribution indicates that the disease is now well established in many Central Western districts. Natural infection has not yet been recorded from Southern N.S.W.

In an attempt to effect spread of the disease, grain cultures of C. xanthii were distributed during the Autumn to farmers and graziers in districts with an average annual rainfall in excess of 25 inches. A total of 196 cultures was distributed. Reports to hand indicate that infection, in varying degree, was obtained in 83% of cases where cultures were applied.

BIDENS PILOSA. (Cobblers' Pegs).

MOSAIC (Virus) was recorded for the first time on this host from the Metropolitan Area.

RUST (Uredo bidentis) and LEAF SPOT (Entyloma sp.) were common in the Metropolitan Area and Central Coast during Summer and Autumn.

CAPSELLA BURSA PASTORIS (Shepherd's Purse).

WHITE RUST (Cystopus candidus). A heavy infection was reported in the Wagga (S.W.S.) district.

CERASTIUM GLOMERATUM (Mouse Ear Chickweed).

DOWNY MILDEW (Peronospora alsinearum) was prevalent in the Metropolitan Area.

CHENOPODIUM ALBUM (Fat Hen).

DOWNY MILDEW (Peronospora variabilis). A heavy infection of seedlings was reported from Griffith (M.I.A.).

CIRSIUM ARVENSE (Canada Thistle).

GREENING (? Tomato Big Bud virus) was recorded from Crookwell (C.T.).

CREPIS VIRENS (Hawks beard).

LEAF GALL (Synchytrium sp.) was recorded for the first time in N.S.W. from Oberon (C.T.) and the Metropolitan Area.

CRYPTOSTEMMA CALENDULACEA (Cape Weed).

DOWNY MILDEW (Peronospora sp.) was prevalent at Carlingford, Arcadia and elsewhere in the Hills district (M.A.) during the Autumn.

DIPLOGLOTTIS CUNNINGHAMII.

RUST (Ctenoderma diploglottidis) reported from Narara (C.C.).

ERODIUM CYGNORUM (Blue Crowfoot).

LEAF SPOT (Septoria sp.) was recorded for the first time on this host in N.S.W. from Singleton (C.C.) and Barham (R.).

EUCALYPTUS SPP.

LEAF BLIGHT (Sphaerella nubilosa) occurred, particularly on young growth during late Spring and Autumn, in the Metropolitan Area, Central Coast and Tablelands.

EUPHORBIA PEPLUS (Petty Spurge).

LEAF SPOT (Septoria sp.) was common in the Metropolitan Area.

GALINSOGA PARVIFLORA (Potato Weed).

LEAF SPOT (Septoria sp.) was recorded for the first time in N.S.W. from the North Coast and Hills district (M.A.).

GERANIUM PILOSUM.

RUST (Puccinia geranii-pilosi) was recorded from the Metropolitan Area.

HYPOCHOERIS RADICATA (Flat Weed).

GREENING (Tomato Big Bud virus) was recorded from the Metropolitan Area.

LEAF SPOT (Ramularia sp.) was recorded for the first time in N.S.W. from Oberon.

MOSAIC (? Cucumber mosaic virus) was prevalent in the Gosford (C.C.) and Hills (M.A.) districts.

MALVA SPP. (Mallows).

RUST (Puccinia malvacearum) was common in the Wentworth district (W.D.), M.I.A. and Metropolitan Area.

MELILOTUS INDICA (Hexham Scent).

LEAF SPOT (Entyloma meliloti) was recorded for the first time in N.S.W. from Binnaway (N.W.P.).

POWDERY MILDEW (Oidium sp.) was recorded for the first time in N.S.W. from Pomona (W.D.).

MODIOLA CAROLINIANA (Red-flowered Mallow).

LEAF GALL (Synchytrium aureum) was prevalent in the Metropolitan Area.

NICANDRA PHYSALOIDES (Apple of Peru).

SPOTTED WILT (Tomato Spotted Wilt virus) was recorded from Richmond (M.A.).

NOTHOSCORDIUM FRAGRANS (Onion Weed).

MOSAIC (Virus) was very prevalent in the Metropolitan Area.

PHYTOLACCA DECANDRA (Inkweed).

LEAF SPOT (Ramularia sp.) was recorded for the first time in N.S.W. It was prevalent in the Carlingford and Hills districts (M.A.), causing considerable defoliation and consequent stunting during late Summer and Autumn.

PLANTAGO LANCEOLATA (Lamb's Tongue).

LEAF SPOT (Cercospora sp.) was recorded for the first time in N.S.W., causing considerable injury at Glenoria and Carlingford (M.A.).

PLATYLORIUM FORMOSUM.

RUST (Aecidium platylobii) was reported from the Metropolitan Area.

POLYGONUM AVICULARE (Wire Weed).

RUST (Uromyces polygoni) and DOWNY MILDEW (Peronospora polygoni) were prevalent in the Metropolitan Area.

POLYGONUM HYDROPIPER (Water Pepper).

LEAF SPOT (Phyllosticta sp.) caused premature defoliation at Narara (C.C.) and the Colo River (C.T.) during late Summer.

POLYCONUM MINUS.

SMUT (Ustilago utriculosa) was recorded.

RUBUS FRUCTICOSUS.

RUST (Kuehneola uredinis) and LEAF SPOT (Cercospora rubi) were prevalent in the Metropolitan Area and Central Coast.

SALVIA REFLEXA (Mintweed).

ROSETTE (? Tomato Big Bud virus) was recorded for the first time on this host in N.S.W. from Delungra (N.W.S.) where it showed up over quite a wide area.

SISYMBRIUM OFFICINALE (Hedge Mustard or Mustard Weed).

WHITE RUST (Cystopus candidus) was recorded from the Wagga district (S.W.S.), causing extreme distortion of stems and flowering heads during Spring, 1949.

LEAF SPOT (Alternaria sp.) was recorded from the M.I.A.

SOLANUM OPACUM (Nightshade).

LEAF MOULD (Cercospora tosensis) was recorded from several localities in the Metropolitan Area during the Autumn.

SONCHUS OLERACEUS (Milk Thistle).

LEAF SPOTS (Alternaria sp. and Septoria sp.) were very prevalent during Summer and Autumn in the Metropolitan Area.

SCLEROTINIA ROT (Sclerotinia sclerotiorum) was recorded from the Metropolitan Area.

SYNCARPIA LAURIFOLIA (Turpentine).

LEAF BLIGHT (Sphaerella nubilosa) was recorded from the Metropolitan Area, Central Coast and Tablelands.

ALGAL LEAF SPOT (Cephaleuros virescens) was recorded from the Metropolitan Area.

TRAGOPOGON PORRIFOLIUS (Salsify).

MOSAIC and STEM BLIGHT (? Tomato Spotted Wilt virus) was recorded for the first time on this host in N.S.W. from Griffith (M.I.A.). A heavy crop of this weed in a sultana vineyard showed 100% infection, necrotic blighting of flower stems and some young leaves and very severe mosaic.

TRISTANIA CONFERTA (Brush Box).

LEAF SPOT (Cercospora sp.) was reported from the Metropolitan Area.

VERONICA PERSICA (Speedwell).

LEAF SPOT (Ramularia veronicae) was recorded for the first time in N.S.W. from the Metropolitan Area. Affected plants suffered premature defoliation and much reduction in vigour.

XANTHIUM PUNGENS (Noogoora Burr).

STEM ROT (Macrophomina phaseoli) was recorded for the first time on this host from the Metropolitan Area.

------ooOoo------